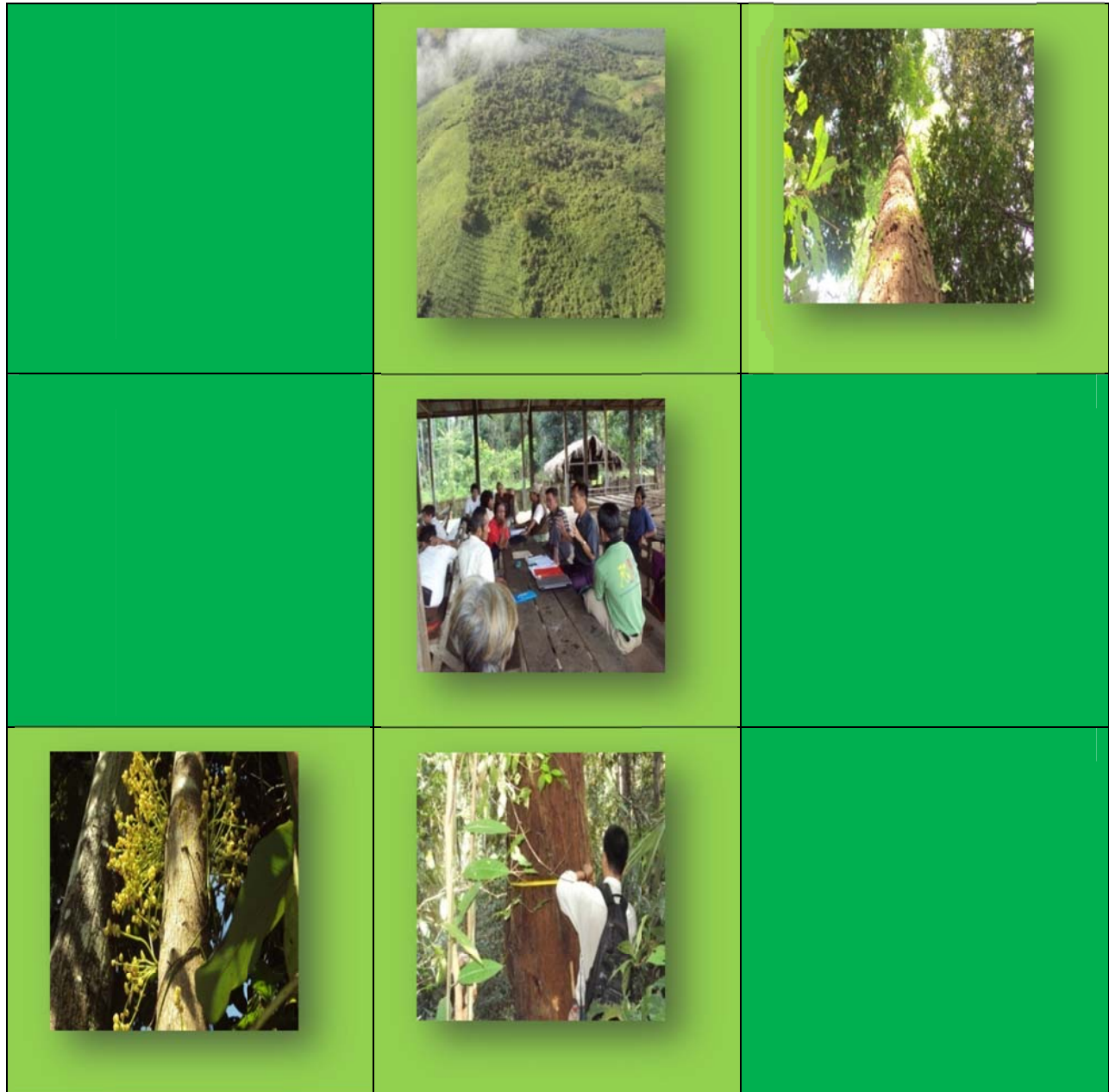


**Ministry of Forestry  
Forest Department  
Taninthayi Nature Reserve Project  
Consultancy Report for Community Forestry**



**Bo Ni  
Deputy Director  
Forest Department**

2010 December

# **Consultancy Report for Community Forestry**

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Deputy Director  
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## Acknowledgement

In preparing this consultancy report I benefited from the assistance and insight of a number of people. My thanks are extended to all those who supported on my work throughout the consultancy period.

In his enthusiastic support of my consultancy, I am indebted to U Saw Win, former Deputy Director of Forest Department. The following officers and staff of TNRP also provided me with invaluable advice and support: U Sein Moe (staff officer), U Soe Min Tun (Range Officer), U Tun Nwe (Superintendent), U Kyaw Lin (Deputy Range Officer), and U Maung Shwe (Deputy Range Officer).

The assistance of Park Warden of TNR, U Tint Swe (Deputy Director), merits special recognition. His encouragement of my consultancy on CF is gratefully acknowledged.

A special appreciation for helping me throughout the consultancy period is extended to U Zaw Win Myint, Project Director of TNRP.

I wish to thank U Zaw Win, Director of Planning and Statistics Division, without his moral and emotional supports, my consultancy on CF will not be accomplished.

Finally, thanks are due to heads of the Forest Department; to Deputy Director General of Forest Department for his support and encouragement; and, above all, to Director General of Forest Department who provided me moral and emotional support throughout my consultancy period.



A Niche

## Acronyms

CF = Community Forestry

CFI = Community Forestry Instructions

NC = National Coultant

TNRP = Taninthayi Nature Reserve Project

FUG = Community Forestry User's Group

FD = Forest Department

MAS = Myanmar Agricultural Services

SLRD = Settlement and Land Records Department



*A beautiful waterfall in TNR*

## Consultancy Report for Community Forestry

### 1. Introduction

Myanmar has a wide variety of natural ecosystems ranging from land, forest ecosystems to marine, coastal and mountain ecosystems. These various ecosystems provide the country with rich biological resources. Myanmar has a long and rich tradition of biodiversity conservation. The wildlife sanctuary at the environs of Mandalay City, decreed by King Mindon in 1859 was the earliest wildlife refuge area in Myanmar. The government is strongly committed to biodiversity conservation. Nature and Wildlife Conservation Division was formed within the Forest Department in 1981. Myanmar has also ratified the Convention on Biological Diversity.

The **Taninthayi** mountain ranges in southern Myanmar supports extensive evergreen forests and embrace globally significant populations of large mammals including Tiger, Asian Elephants and Malay Tapir and potentially significant wildlife population of large ungulates, bears, macaques, and pangolins and tropical hardwoods. In order to protect these important natural resources, Government of Myanmar notified an area (1,700 sq km) as the **Taninthayi Nature Reserve** (TNR) on 30<sup>th</sup> March 2005. **Taninthayi** mountain ranges exist at a strategic position forming an interconnecting and interrelating web of marine and coastal ecosystems of Andaman Sea with terrestrial ones.

Though tropical evergreen forests occur elsewhere in Myanmar, it only reaches its maximum development as tropical rainforest, “Giant Evergreen” or “Evergreen Diptrocarp Forest” in Taninthayi Division. It is also a good timing for implementation of Taninthayi Nature Reserve before the Rain Forests in the reserve are severely disturbed and, in effect, this performance fulfills the establishment of “a balanced system of conservation areas” in Myanmar. As tropical rainforest is by far the richest forest type in bio-diversity, and since it is also potentially the most valuable to human being as a source of genetic material, the idea to manage Taninthayi Nature Reserve is invaluable and said to be versatile. Upstream deforestation and other forms of vegetation clearance are responsible for escalating sediment loads in rivers, estuaries and coastal waters, thereby disturbing functions and structures of coastal and marine ecosystems. Supplying ample amount of fresh water and nutrients, three big rivulets based in mountain range of TNR descend into the Tavoy River. Many ecosystems, particularly mangroves are also increasingly affected by changes in upstream hydrology. Therefore more protected areas should be established throughout Taninthayi mountain ranges until down to southernmost point of the mainland Myanmar.

For the sustainable management of TNR, the issues and threats that must be solved are categorized by Taninthayi Nature Reserve Project (TNRP). Out of those threats and issues categorized, shifting cultivation is ranked as 1 or the most serious threat. Another major

problem to be solved is the illegal logging by local people and others for subsistence and commercial uses. To eliminate shifting cultivation practice in and around the TNR area, TNR management team uses every means and way available. Community Forestry (CF) establishment, inter alia, is one of the ways to solve the problems of shifting cultivation and illegal logging.

In 1995, Forest Department of Myanmar promulgated the instructions called Community Forestry Instructions (CFI). It was an epoch making event of history of forest management in Myanmar. It was because a first ever legal framework that recognized the peoples' participation in forest management activities in the country. The instructions are strongly supported by forest policy, forestry law and the protection of wildlife and protected areas law of Myanmar. The forest enactment allows for community forestry establishment and the instructions made under the Act provides for a land and tree tenure of 30 years with royalty and text exemptions for domestic use.

## 2. Basic Strategy for TNR Management

In order to perform CF national consultant's job in accordance with the TORs assigned, it is required to review the designated basic strategy to implement the TNR Project to achieve its management goal and main objectives. Management Goal of the TNRP is **"to conserve the tropical rainforests and their constituent biodiversity in the Taninthayi Nature Reserve"**. Through the **Live Landscapes Program** of Wildlife Conservation Society (WCS), with contents of the conservation targets, direct/indirect threats to these targets, major actors that give rise to the said threats, and necessary interventions so as to reduce or eliminate the threats, a **Conceptual Model or Management Framework** of the TNRP was formulated. The management framework defines the project design, management and monitoring activities of the project. Following table that identifies the activities including CF activities to intervene the related threats is partly adapted from the Management Framework of TNRP.

Conservation Targets	Direct Threats	Indirect Threats	Interventions
Important Mammals	Hunting for subsistence	-Traditional culture -Lack of alternative source of protein or domestic livestock -Human-wildlife conflict -Weak law enforcement -No commercial meat available or no access to market	-Providing domestic livestock with partners -Awareness activities -Zonation -Law enforcement and patrolling
	Hunting for trade	-Lack of alternative source of income -Demand for wildlife	-Patrolling -Awareness Raising -Alternative source of income

		product	
Important Habitats	Forest fire	-Hunting -Camp Fire -Shifting Cultivation	-Awareness raising and education -Law Enforcement -Fire management -Controlled burning in Shifting Cultivation
	<b>Shifting Cultivation</b>	-Land scarcity -Traditional culture -National policy with escalating targets for rice production	<b>-Creation of Village Use Zone</b> -Technical advice and material support to villagers for sedentary farming partnering with GO/NGO as Metta Foundation, MAS, Socio-economic Dept. of TOTAL etc.
	<b>Logging</b>	-Lack of alternative source of income -Market demand -Use as building materials (subsistence)	-Law enforcement -Awareness <b>-Community forestry practice outside of the TNR area</b> -Forest Tree seedling distribution to local villagers to plant at their own garden <b>-Zonation – using village use zones for meeting basic needs</b>
	Encroachment by villages and plantations	-population increase -increasing demand for rubber, palm oil -land scarcity -lack of skills to pursue other means of livelihoods	-Family planning in collaboration with socio-economic department -Awareness of laws and regulation <b>-Defining village use zones</b> -Providing professional skills to pursue means of livelihoods

**Note; The Detail Management Framework can be learned at a booklet of “A Management Framework and Conservation Work plan for the Taninthayi Nature Reserve, Myanmar”**

By reviewing of Project Document of TNRP, it is identified that the actors those who trigger the threats to a sustainable management of TNR are local people, outsiders (temporary workers from other places), insurgents, plantation companies and mining companies. The conceptual model of TNRP shows that there are many cross-cutting issues to be solved and, if the nature reserve is to manage sustainably, much effort must be paid by related stakeholders. Given the existing threats and actors of the threats to TNR, CF is one of intervention points to solve the threats of illegal logging and shifting cultivation in participation with main actors, particularly with local people. If the threats of shifting cultivation and illegal logging are eliminated, one of the conservation targets of protecting habitats for important mammals will be fulfilled.

### 3. Shifting Cultivation

As Management Goal of the TNRP is “**to conserve the tropical rainforests and their constituent biodiversity in the Taninthayi Nature Reserve**”, it is worthwhile to explain how shifting cultivation can seriously affect the management goal of the TNR.



Shifting cultivation has been practiced extensively by mostly ethnic national people in Myanmar, especially in mountainous areas, since time immemorial. On a patch of upland forest, people cut trees and other low vegetation and then dry the fell vegetation and burn it. This practice is also called the slash and burn practice. Hill rice and other vegetable or fruit plants are then grown for one to two years. The field is then abandoned and farmers move to another site to repeat process. In the past, the farmers returned to a site only after 10 to 30 years, depending on recovery rate of the fallowed fields. Rice yields were reported from 30 to 40 basket/ha. However, nowadays due to widespread replacement of forest areas with other land uses as establishment of estate-crop plantation (Rubber, traditional orchards, oil palm etc.), land for shifting cultivation is scarce and fallow period is often reduced to 5 to 7 years, resulting in much lower yields.

Taungya cutting in and around the TNR was recorded in old forestry related documents. It was known that the practice was centuries old and many forest areas along the Valley of Davoy River were seriously degraded by this practice. According to forest management records of Taninthayi Division, most of accessible areas which nowadays we can see along Ye-Tavoy motor road and along the Tavoy River Valley, were taungya affected lands. Long before the taungya cutting was practiced; the areas were covered by good forests containing such valuable tree species as Pyangado (*Xylia xylocarpa*) and Kanyin (*Dipterocarpus Spp.*) etc., it was learned from recorded documents in the colonial era.

Traditionally, shifting cultivation system was sustainable because population pressure was low and enough time was allowed for the forest to regenerate. However, with today's rapidly growing population, this system has been cited as a major cause of deforestation in Myanmar. The problem was aggravated by various underlying factors including establishment of Estate Crops Plantations such as Rubber and Oil Palm. Following synthesis represents the advantages and limitations of taungya practice.

#### **Advantages**

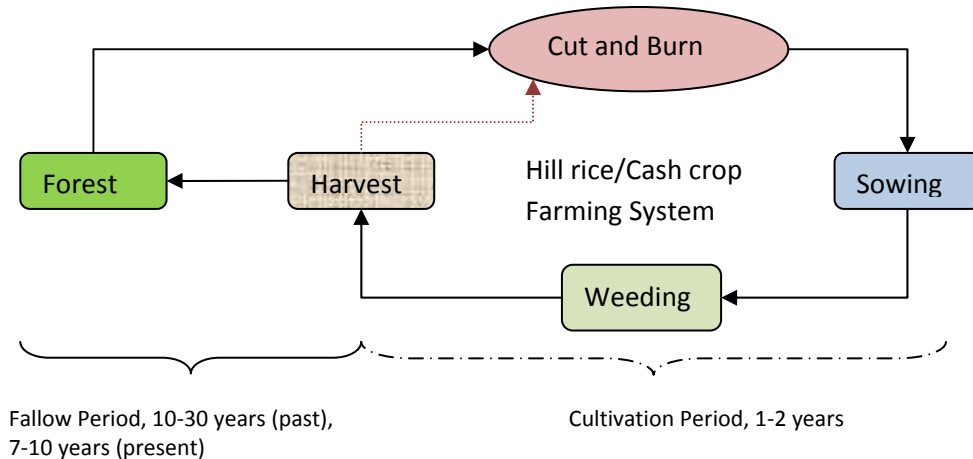
- Low cost
- System is familiar to Farmers
- Simple technology
- Integrated part of local culture

#### **Limitations**

- Large land area needed
- Soil erosion after burning
- Leads to deforestation
- Low yields
- Extensive weeding initially needed

Following Diagram represents the taungya farming cycle in the Taninthayi Region.

### **Taungya Farming Cycle in and around the TNR**



### **3.1 Ecological impacts of shifting cultivation**

Each form of land-use carries with it a particular suite of ecological costs. Perhaps the most intensive and costly way to use a forest is to cut it down, burn it and plant something else (e.g. timber trees, agricultural crops, pasture grasses) on the site. The ecological impacts of forest conversion are immediate, highly visible, and, in most cases, very severe. Current research in tropical forests suggests that the most important of these impacts include:

- The loss of biomass and species diversity
- The release of CO<sub>2</sub> and other greenhouse gasses
- Disruption of nutrient and hydrological cycles
- Soil loss through erosion
- Increase local temperatures and decrease local rainfall

At present, TNRP management team is using Taungya System in implementation of CF to generate short term income through taungya paddy and vegetable plants, and long term income through replanting of valuable tree species and estate crops such as Pyinkado (*Xylia xylocarpa*), Mahogany (*Swietenia machrophylla*), Shaw-phyu (*Sterculia versicolor or foetida*), Cashews nut ( *Anacardium occidentale* ) , Citrus spp etc. In the long run, TNRP management team envisages transforming the CF land to sedentary farming.

Taungya practice in Taninthayi Division is, as mentioned, an age old practice for subsistence food and income for local ethnic people. After taungya cutting and cultivation, the undergrowth as bamboo and other weed spp. reoccupied the whole cut-area within one year and soil erosion is not very serious, but from the point of view of the environmental conservation (eg. loss of biodiversity, GHG Emission and susceptibility of soil cover, disruption of animal corridors, destruction of habitats), serious consideration should be paid before costly decision is made in allotting land to each Forest User's Group (FUG) Members for taungya cultivation.

#### **4. Overview of Community Forestry**

Before National Consultant (NC of CF) continues actual implementation of assigned TOR he reviewed CF in international and Myanmar agendas. Following are reviewed from international and Myanmar CF related issues.

##### **4.1 Overview of Community Forestry in International Agenda**

If we use the term community forestry in its broadest sense, it can include a range of different terms and approaches such as community based forest management, social forestry, and joint forest management. Community forestry has quickly evolved since 1970s from being an emerging concern in a small number of countries to being a major plank of forestry policy in dozens of countries in Asia, Africa, Latin America and Europe. In many of those countries it is the focus of considerable efforts and expenditure by governments, NGOs, donors and communities.

Probably the first and very broad definition was that of FAO (1978) which defined community forestry as "any situation which intimately involves local people in a forestry activity". But in 1991, Gilmour and Fisher included "control and management by rural people" as an identifying characteristic. Other definitions are less specific about this, but there is a reasonable consensus that community forestry involves some element of community participation in forest management (not just through the provision of labor) and some commitment to improve or secure provision of at least some forest products to rural people living in and near the forests.

The recognition of the forests' contribution to social and economic, especially rural development was first officially stated in the Jakarta Declaration in 1979 declaring, "Forests are for people". This new orientation resulted in the development of various strategies of Participatory Forest Management (PFM). The conceptual progress was followed by a review of the Forest Policies and Legislation in many countries, to legally establish the different PFM concepts. The recent analyses even look more in depth into the role of the communities, comparing approaches where they are either seen as users, managers or owners (FAO 1999 and Alden Willy 2002).

By the time of the June 1992 Earth Summit (United Nations Conference on Environment and Development- UNCED), countries had developed a series of **principles for sustainable forest use**. This, the first global consensus on forests, deals with the needs of people who want to protect forests for environmental and cultural reasons and with the needs of people who use trees and other forest life for economic development. The Rio Statement says that forests, with their complex ecological process, are essential to economic development and the maintenance of all forms of life. They are the source of food, wood and medicine, and are rich store houses of many biological products yet to be discovered. They act as reservoirs for the water and for carbon that would otherwise get into the atmosphere and act as green house gas. Forests are home to many species of wildlife and, with their peaceful greenery and sense of history, fulfill human cultural and spiritual needs. Among the forestry principles, following points which should be considered in implementation of CF in Myanmar are denoted;

- Countries have right to use forests for their social and economic development needs. Such use should be based on **national policies consistent with sustainable development**.
- Forest should be managed **to meet the social, economic, ecological, cultural and spiritual needs of present and future generation**.
- Forest plans should recognize both the **economic and non economic values of forests**, and the environmental costs and benefits of harvesting or protecting forests. Policies that encourage forest degradation should be avoided.
- The planning and implementation of national forest policies should involve **wide variety of people, including women, forest dwellers, indigenous people, industries, workers and non-governmental organizations**.
- Forest policies should **support the identity, culture and rights of indigenous people and forest dwellers**. Their knowledge of conservation and sustainable forest use should be respected and used in developing forestry programs. They should be offered forms of economic activities and land tenure that encourage sustainable forest use and provide them with an adequate livelihood and level of well-being.

#### **4.2 Myanmar Perspectives on Community Forestry**

Forest Department of Myanmar has been one of the experienced institutions in the scientific forestry management since 1856, conducting the forest management system renown as Myanmar Selection System (MSS). To keep pace with a modern forest management, especially in accordance with internationally accepted forest principles adopted in UNCED, Myanmar promulgated the forest policy, law, procedures and criteria that will lead to a sustainable forest management (SFM) of the country. Following abstracts are collected from Myanmar Forest Policy (1995), Forest Law (1992), Forest Rule (1995), the Protection of Wildlife and Protected Areas Law (1995), Community Forestry Instructions (1995) and Myanmar Agenda-21 (1997).

#### **4.2.1 Forest Policy**

Among 6 imperatives of the forest policy of Myanmar, participation is one that recognizes the people's spontaneous participation in the forest management activities. It says that " enlisting people's participation in forestry, wildlife and national park activities so that the community becomes actively involved in appropriate ways in national and local efforts towards forest conservation and development, and in raising trees for meeting their needs and increasing non-farm incomes through adoption of community forestry/agro-forestry practices.

#### **4.2.2 Forest law and Forest Rule**

With recognition of the people participation in forest management activities, there are also basic principles to implement the forest law of Myanmar inter alia;

- To promote the sector of public co-operation in implementing the forestry policy and the environmental conservation policy of the government;
- To develop the economy of the state, to contribute towards the food, clothing and shelter needs of the public and for perpetual enjoyment of benefits by conservation and protection of forest;

The act 15 and forest rule 40 of forest law support the community forestry implementation whilst in the protection of wildlife and protected areas rules, rule 14(a) encourages Forest Department to allow local people to practice community forestry activities in the buffer zone of the protected area.

#### **4.2.4 Myanmar agenda 21**

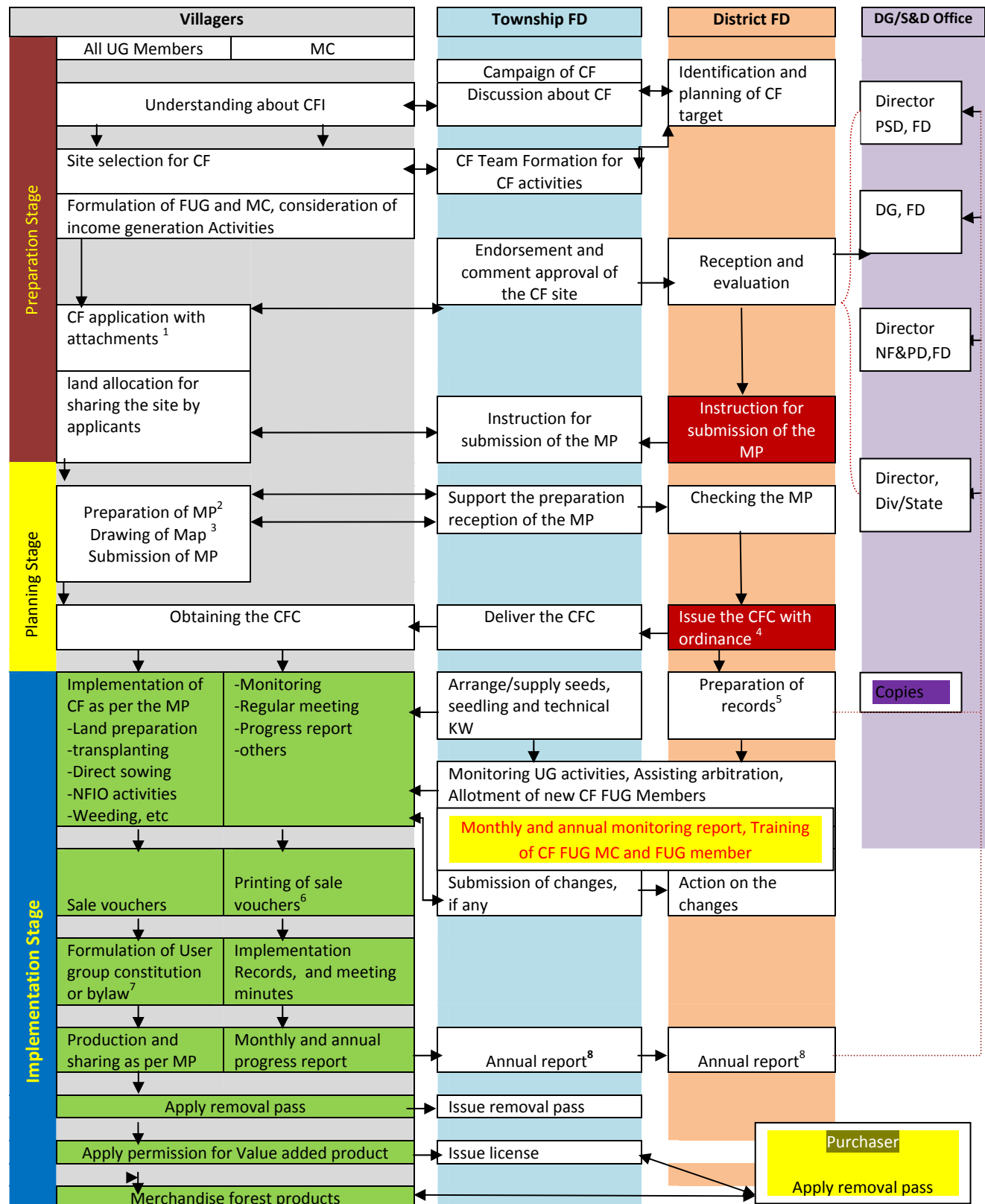
Forest land degradation and deforestation in Myanmar reflect an interaction between forest, forest land use and the overall development of the society. The government of Myanmar is conscious of the importance of the people's participation in forestry development activities to ensure a sustainable relationship between people and the forest resources base. Accordingly, efforts have been strengthened to mobilize the rural community for ensuring their active participation in forestry development and management programs.

#### **4.2.3 Community Forestry Instructions**

According to community forestry Instructions of Forest Department, Ministry of Forestry, it is defined as follow,

1. Community forestry means: Forestry operations in which the local community itself is involved; such as:
  - Establishment of woodlots where there is insufficient fuel-wood and other products for community use
  - Planting of trees and exploiting of forest products and incomes at farmers level.
2. Community forestry is neither a regional development forestry operation nor a large scale forest operation to import an industrial enterprise based on forest products.

Following is a diagram that briefly demonstrates the CFI and its implementation process



Note: 1) Attachments, (a) Location Map, (b) Annex "form-1), Member List & signature, Meeting Minutes

- 2) Selection of species, establishment of plantation and maintenance and rehabilitation of natural degraded forest (NFIO)
- 3) Maps; (1) location map, (2) stock map, (3) management map
- 4) The ordinances are, CFI, Forest Law, Forest Rules and Regulation, and special instructions for CF
- 5) The CF Record is composed of (1) application, (2) approval of township FD Officer, (3) approval of District FD, (4) copy of CF Certificate
- 6) Three kinds of sale vouchers for distribution of forest products to (1) within the village (2) within/(3)outside township
- 7) the rules and regulations for FUG is constitution of the CF FUG. Required its preparation as of first activity of CF.
- 8) The annual report is evaluated by Assistant Director and reported. (this diagram is adapted from Mangrove Forest Rehabilitation Manual for the forest Department Frontline Staff of the Ayeyawady Delta)

Through the review of International and Myanmar perception of CF, it is observed that the CF has been paid special attention by governments for the implementation of Sustainable Forest Management. But there are some underlying issues to be solved to establish sustainable CF, inter alia, are, land tenure and security of CF FUG members, Livelihood support with program of quick benefit return, involvement of related stakeholders in CF activities, Capacity Building of FUG members, access to local credits of CF FUG, allocation of substantial amount of budget for CF in government budget scheme and empowerment of CF FUG to manage their own CF areas.

For Myanmar CF, by self experiences and study of CF activities throughout Myanmar, as mentioned in the above diagram with 2 red boxes, the bottlenecks or constraints to start actual implementation of the CF are to release a letter from District Forest Officer of FD that inform confirmation of the land area selected and proposed by CF FUGs; and the issuance of a CF Certificate by FD.

## **5. TORs of National Consultant for Community Forestry**

The responsibilities and duties of the National Consultant (NC) to the Community Forestry are to extend the community forestry concept among Community Forestry User's Groups (CF FUG) dwelling nearby TNR and staffs of Taninthayi Nature Reserve Project. In addition to that, the NC has to formulate the Management Plans for selected CF FUG through participatory approach. Moreover, the consultant is assigned to assist TNR management authorities with the development of a detailed zoning/land use plan for the reserve and adjacent areas.

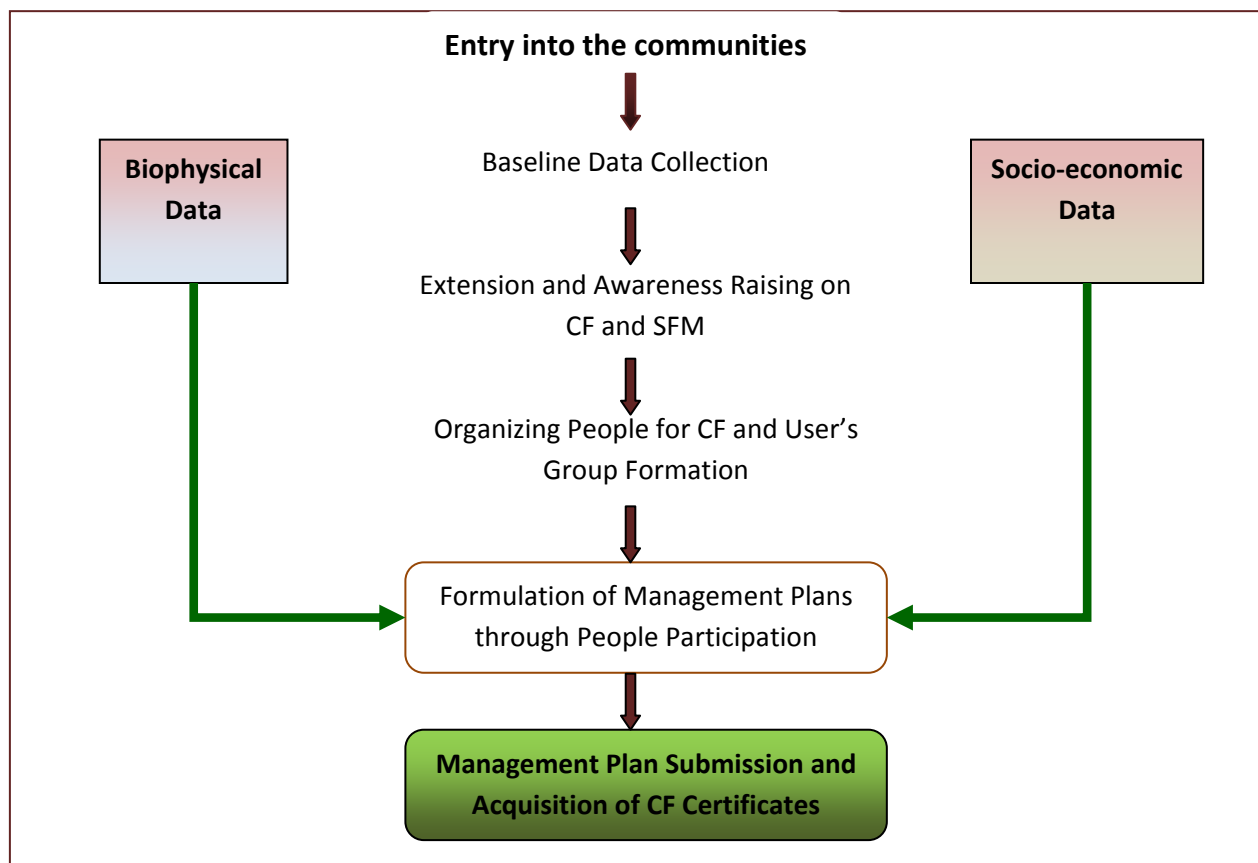
To accomplish the designated duties and responsibilities, the consultant performs following activities.

1. reviewing the secondary data
2. Selection of target areas and villages for community forestry (in reality TNRP has already selected Communities for CF)
3. Through Participatory Rural Appraisal (PRA) methods
  - a. Gather community information and identify village needs

- b. Collect biophysical data of the target area (Forest Type, Land Use, Species Composition and so on.)
  - c. Identify key constraints and intervention points to implement CF
  - d. Extend community forestry practices and sustainable forest management to the local community and staff of TNR
4. Evaluation and analysis of collected data and discussion among key stakeholders
  5. Selection of target groups and formation of user's groups for CF
  6. Participatory planning (management plan of CF)

Through conceptualizing of CF and community based natural resources management to the communities and field staff of TNR, the National Consultant for CF tried its best to accomplish the prescribed TOR in the designated timeframe (4 months from September to December 2010) for consultancy.

To accomplish the TOR assigned, National Consultant uses the approach shown below.





## 6. Performance of CF National Consultant

As was explained in the diagram of approach by CF National Consultant to accomplish the TOR of consultancy, NC's first attempt was **entering into the community** so that he could persuade them to willingly participate in the NC's CF activities. Before entering into the community NC insured the clarity of purpose between TNRP, himself and the community through meeting with formal and informal leaders. With kind support of TNR Park Warden, in recognition of role and position of local authorities, NC paid them a visit and informed his presence and objectives. At the same time NC informed the communities that he was Just a facilitator to support them to implement sustainable CF activities rather than a Forest Officer who came there to control their forest related activities. To be seen as a CF facilitator who differs from a conventional forester by communities, NC stayed closely and worked together with them and created friendly atmosphere between NC and communities. In short, the NC tried to immerse himself in the community to get to know the culture, history, economy, leaders and lifestyle of the people. After mutual understanding among NC, TNR Staff and CF FUG members was constructed, NC conducted the **baseline data collection**. Biophysical Data is collected through interpretation of GIS Data (kindly supported by GIS Section of FD) and Direct Field Observations (Transact Walks). Socio-economic data was collected by meeting with key informants and reviewing literature of TNRP.

### Some salient activities performed by CF NC

No.	Activities	Status	Remarks
1.	Field observation for the purposes of surveying CF area, formulation of CF management plans, understanding of present land-use and extending of CF and natural resource conservation especially forest resource conservation etc.	11 times	Michaunglaung (3), Zimber-1 (3), Zimber-2 (1), Thayamon (2), Yebon (1) and Kyaukshat (1)
2.	Meeting with CF FUG, with the objectives of CF extension and training, mobilization of CF FUG for CF implementation, CF Management Plan Formulation etc.	20 times	Michaunglaung (6), Zimba- 1 (6), Zimba-2 (3), Thayamon (2), Yebon (1), Kyaukshat (2)
3.	Meeting and consultation with Director of Taninthayi Region FD, Assistant Director of Tavoy district FD, Yebyu Township FD for the purpose of CF area confirmation and CF certification etc.	3 times	
4.	Attend and present monthly consultancy progress report at TNRP office monthly meeting	4 times	

Occasionally, CF NC attended monthly meetings of TNRP and participated in the VUZ training launched by WCS.

## **6.1 Biophysical Data**

Through transact walking, compared the main features, resources uses and problems of the different zones of the CF areas. This operation resulted in a cross-section of major land use zones of the CF areas of the each CF UsG. The operation of transact walks were participated by TNR Staffs (including Extension Staff), FD staff, CF Management Committee Members and User's Group Members. The transact walk is an effective tool through which we can get information on land uses, natural resources, problems, constraints, advantages and possible solutions while mutual trust between staff, NC and CF FUG members can be constructed.

## **6.2 Socio-economic data**

Socio-economic data was collected through reviewing Documents of TNRP and meeting with Key Informants. Collected Data are Human/Gender and their age classes, Taungya Cutter, Orchard Ownership, Estate crops, landless workers, other workers etc.

## **6.3 Issues analyzed**

- a. There is scarce flat land that is arable for diversified crops for villagers dwelling around TNR area.
- b. The taungya practice is culturally rooted phenomenon for local ethnic people.
- c. There are also rare alternative income opportunities for villagers.
- d. Land tenure/title is not secured for local communities even though orchards in the Reserved Forest are traditionally being managed by villagers since decades.
- e. Due to population pressure and population migration in to Taninthayi Region and encroachment of estates crops on the traditionally cultivated areas of local people, local communities face scarcity of land for cultivation and forest produces.
- f. Local communities are weak in awareness and education in nature conservation and natural resource management.
- g. Customary land ownership and access to forest resources among local communities are inequitable.
- h. Inputs into the existing taungya/orchards by communities are not efficient to attain necessary and profitable outputs.
- i. Coordinated effort among related stakeholders to eliminate the shifting cultivation and to improve livelihoods of community is weak.

- j. Insurgency and Language barrier are constraints to extend concept of Community Forestry and environmental awareness of local people.

#### **6.4 Preparation of Management Plans**

Through Data collected and conducting analysis on those data, Management Plans for CF FUG were prepared in accordance with Community Forestry Instructions (CFI). Throughout the planning process, NC, TNR and FD staff played as facilitator role rather than gave instructions to them. The management plans were confirmed by consensus of User's Group Members. This explanation of CF Planning Process done by NC is a generalized one and in reality, when NC started his duties at TNR, the statuses of the CF implementation of each FUG were at different stages. Michaunglaung old CF FUG was already awarded with CF Certificate, but the Certificate didn't comply with the area applied by CF FUG. Thayamon CF FUG was at the stage of "accepted the application and confirmed the area by District FD". Zimba-1 CF FUG was at the same status to Thayamon CF. Zimba-2 and Yebone CF FUGs were in the same status of "just CF application was submitted". Kyaukshat has been at a status of "yet to be organized as a CF FUG".

Together with preparation of CF Management Plan, **the collaborative agreements among CF FUG Members, FD and TNR**, in other words, **Bylaws** for CF FUG were compiled by consensus of all FUG Members. Bylaws are comprised with duties, regulations and rights that must be borne and followed by CF FUG members.

#### **6.5 Community forestry establishment**

As agreed by TNR Management Team, NC focuses on 6 CF FUGs, namely,

- a. Michaunglaung old CF FUG,
- b. Zimba CF FUG-1,
- c. Zimba CF FUG-2,
- d. Thayamon CF FUG,
- e. Yebone CF FUG and
- f. Kyaukshat CF FUG.

Geographically, villages where CF FUGs located exist between Tavoy River and TNR west boundary except Thayamon village, which locates west side of Tavoy River. As was explained in

the Management Framework of TNR, Establishment of Village Use Zone for each village is essential to make a balance of access to forest resources of TNR Buffer-zone among villagers who are CF FUG members and who are not. Therefore it is suggested that formulation of VUZ process of TNRP should be accelerated as possible as it can be.

Among CFs, **Michaunglaung old** CF FUG had been awarded with a CF Certificate by the Divisional Forest Department of Tanintheryi since before CF NC was assigned. But the certificate did not fully embrace the CF area applied by CF FUG. Tanintheryi Division FD offered 105 acres only despite the fact that the FUG proposed 3330 acres for CF. Therefore, TNR Park Warden officially informed Tanintheryi Division FD to certify all proposed area, taking into account the spontaneous participation of CF FUG in the sustainable management of TNR. In response to TNR Park Warden's letter, Tanintheryi Division FD instructed Township FD through District FD to make detail field inspection on the proposed area and to recommend whether the whole area applied should be awarded as CF to FUG or not. The field inspection was thoroughly done in participatory manner by a team involving CF NC, CF FUG members, TNR staffs and township FD staffs. NC took this opportunity to be acquainted with and to extend the CF and Forest Resource Management to Key Community Members and TNR Staff. Now that the report with recommendation to certify the whole area that CF FUG proposed has been submitted to District FD, the community is waiting for the response from FD, Tanintheryi Division. Special characteristic of Michaunglaung CF FUG is that all households of the village involve in the group and all members of households are Kayin Ethnic people.

The status of **Zimba CF UsG-1** is different from Michaunglaung CF FUG. The CF is at a stage of Management Plan formulation when CF NC started his duty in TNRP. NC launched the CF Management Plan formulation through participatory field studies, successive meetings and discussions to facilitate in formulation of a CF Management Plan among CF FUG Members. Finally the management plan was finalized through a consensus of all CF FUG members. Recently, the CF management plan had been formulated and submitted to District FD through township FD.

Zimba Village, the village which is dissimilar to Michaunglaung's, is dwelled by socially heterogeneous ethnic groups. Villagers comprise of Kayin, Bamar and Tavoy ethnic people.

Therefore it was found to be difficult to organize a consolidated CF FUG with involvement of all households of the village. As a result, the villagers are divided into 3 CF FUGs based on the social cohesiveness. Zimba CF FUG-1 is organized with 60 households and almost all of CF FUG members are Kayin Ethnic people and they all are Christians.

**Zimba CF FUG-2** applied a CF area in 2009, but the area had not been confirmed by FD, Taninthayi, at the time when CF NC started his consultancy. NC launched a negotiation with FD Taninthayi Division to speed up the CF activities initiated by TNRP. While waiting for the confirmation letter from FD, Taninthayi Division, the community was treated by CF NC and TNR staff for consolidation of CF FUG, preparation of a site comprehensive management plan for CF and extension of forest management and nature conservation. Parallel to mentioned activities, NC, in cooperation with Township FD staff, TNRP Local Staff and CF Management Committee Members, conducted field survey and prepared a field survey report. Now that the area applied for CF FUG has been confirmed by Divisional FD, CF management plan is formulated and it is almost ready to submit to District FD of Tavoy, Taninthayi Division. Zimba FUG-2 involves 30 members and most of them are Kayin Ethnic people but all of them are Buddhists.

**Thayamon** CF UsG has also applied an area for CF since 2009 and the application was accepted by FD, Taninthayi Division. The FUG was informed to submit a management plan. The NC, as was done with Zimba CF FUG-1, launched meetings and discussions to hear their objectives and idea to establish CF and then envisioned them to understand CFI, and to awaken and mobilize for forest resource management. Through days of field studies and discussions among CF FUG members, NC, TNR staffs and township FD staffs, a CF Management Plan was finalized and submitted to Tavoy District FD. When he got into the community, CF NC tried to draw community's impression on him as a CF facilitator rather than as a FD staff who was assigned to instruct them on forest management.

Actually, Thayamon CF area exists outside the TNR village use zone, but the community is worth to be supported by TNRP to establish a CF, because they have a strong desire to conserve the watershed area on which the community wholly depends for their daily water-use. Thayamon village is dwelled by mostly Mon ethnic peoples and a recently relocated village. Still it is to be done more representation of household members of the Village in CF FUG.

**Yebon CF FUG** had well been organized by TNRP and the NC started a process of CF from participatory field study and extension of forest resources management. In participation with Township FD Staff, TNR Staff and CF FUG Members, field inspection report was submitted to District FD through Township FD. The area for CF was already confirmed by District FD recently. In closed consultation with CF users' group members and TNRP staff, the CF management plan formulation has been accomplished and it is ready to submit to District FD. Yebone CF FUG does not intend to establish agroforestry in the CF area, their ultimate objective to implement CF is to conserve water sources in the CF area on which villagers depend.

**Kyaukshat CF FUG** is under organizing and the bio-physical data of proposed area for CF is assessed through satellite image interpretation and ground truth works. The socioeconomic condition, traditional knowledge, attitude on forest resources, existing local technology for their livelihood and so on were assessed through PRA methods by WCS team. In combination of those data, NC launched necessary activities for organization and consolidation of a CF FUG and formulation of a CF management plan in participatory manner. But NC could not conclude the CF Management Plan formulation within his consultancy period.

## 6.6 Status of Community Forestry activities

Following table shows the present status of each CF after the final month of the CF Consultancy.

CF UsG/ CF Status	Organization	Application	Confirmation	MP Formulation	MP Submission	Certification
MGL						√
ZIMBA-1					√	
THYM					√	
YBN*				√		
ZIMBA-2*				√		
KST	√					

MGL= Michauunglaung *old*, THYM= Thayamon, YBN= Yebone, KST= Kyaukshat, FUG= CF User's Group, MP= Management Plan

\*MPs for two users' groups are formulated and ready to submit to Township Forest Department.

### Age classes of CF Villages

Sr. No.	User Groups Name	Male		Female		Male/female ratio
		Over 18	Under 18	Over 18	Under 18	
1.	Michaunglaung old	92	82	98	102	174/200
2.	Zimba (FUG-1)	70	54	68	58	124/126
3.	Zimba (FUG-2)	48	34	40	33	82/73
4.	Thayamon	70	57	54	42	127/96
5.	Yebone	100	56	78	57	156/135

### CF User Groups and their Socio-Economic Situation in relation to Forest Resources

Sr. No.	Village/FUG Name	Member (h/h)	Orchard + Taungya (acres)	Remark
1.	Michaunglaung old	76	200	The most own-22, The least own-0, 68 h/h have Orchards and Taungya (O & T), 8 have not, Average own 2.5 acres
2.	Zimba FUG-1	60	244	The most own-25, The least own-0, 37 h/h have O&T, 23 have not, Average- 4 acres
3.	Zimba FUG-2	30	64	The most own-10, The least own-0, 16 h/h have O&T, 14 have not, Average-2.1 acres
4.	Yebone	56	244	The most own-24, The least own-0, 30 h/h have O&T, 16 have not, Average-4.5 acres
5.	Thayamon	54	359 (Mostly Rubber)	The most own-40, The least own-0, 34 h/h have O&T, 20 have not, Average-6.7 acres

CF areas of Michaunglaung, Zimba-1 and Thayamon are in the vicinity of the villages, but distance between remaining CF areas and respective villages are reasonably far away. Among the CF FUGs, Michaunglaung is homogeneous in kinship, culture and religion; therefore it is a group of promise to be established as a consolidated CF FUG in the future. But to establish as a consolidated CF, the equitable allocation of CF area among FUG members is essential. At present the gap of customary land ownership among them is very wide. TNRP should consider Michaunglaung Group to establish as a Model CF User's Group in view of extending CF activities to other villages, in coordination with Socio-eco Department of TOTAL and related Local Government Institutions.

### Overall Land use and Land Cover Status of 5 CF Areas of TNRP

No.	Landuse	Thayamon	Michaunglaung	Zimba-1	Zimba-2	Yebone	Total
1.	Closed Forest	1.73	5.53	2.25	87.37	288.41	385.29
2.	Open forest	73.23	115.15	131.35	168.44	426.50	914.66
3.	Water		11.41	27.88	7.21	6.57	53.06

4.	Agriculture		0.52	0.19			0.71
5.	Grass Land	275.64	311.38	284.21	9.23	1.09	881.55
6.	Dry Grass	96.78	1.21			0.18	98.17
7.	Sand		0.17	40.79	1.58		42.54
8.	Y-R	15.34	18.33	2.06	0.23		35.95
9.	Bamboo	36.07	60.86	86.25	120.70	136.45	440.33
10.	Scrub Land	553.21	2643.49	1503.19	472.44	76.80	5249.13
11.	Horticulture		27.49	48.27			75.76
12.	Taungya		31.47	23.57	10.81		65.85
	<b>Total</b>	<b>1052.00</b>	<b>3227.00</b>	<b>2150.00</b>	<b>878.00</b>	<b>936.00</b>	<b>8243.00</b>

**Overall Land use and Land Cover Status of 5 CF Areas of TNRP at contour level of lower than 500 feet**

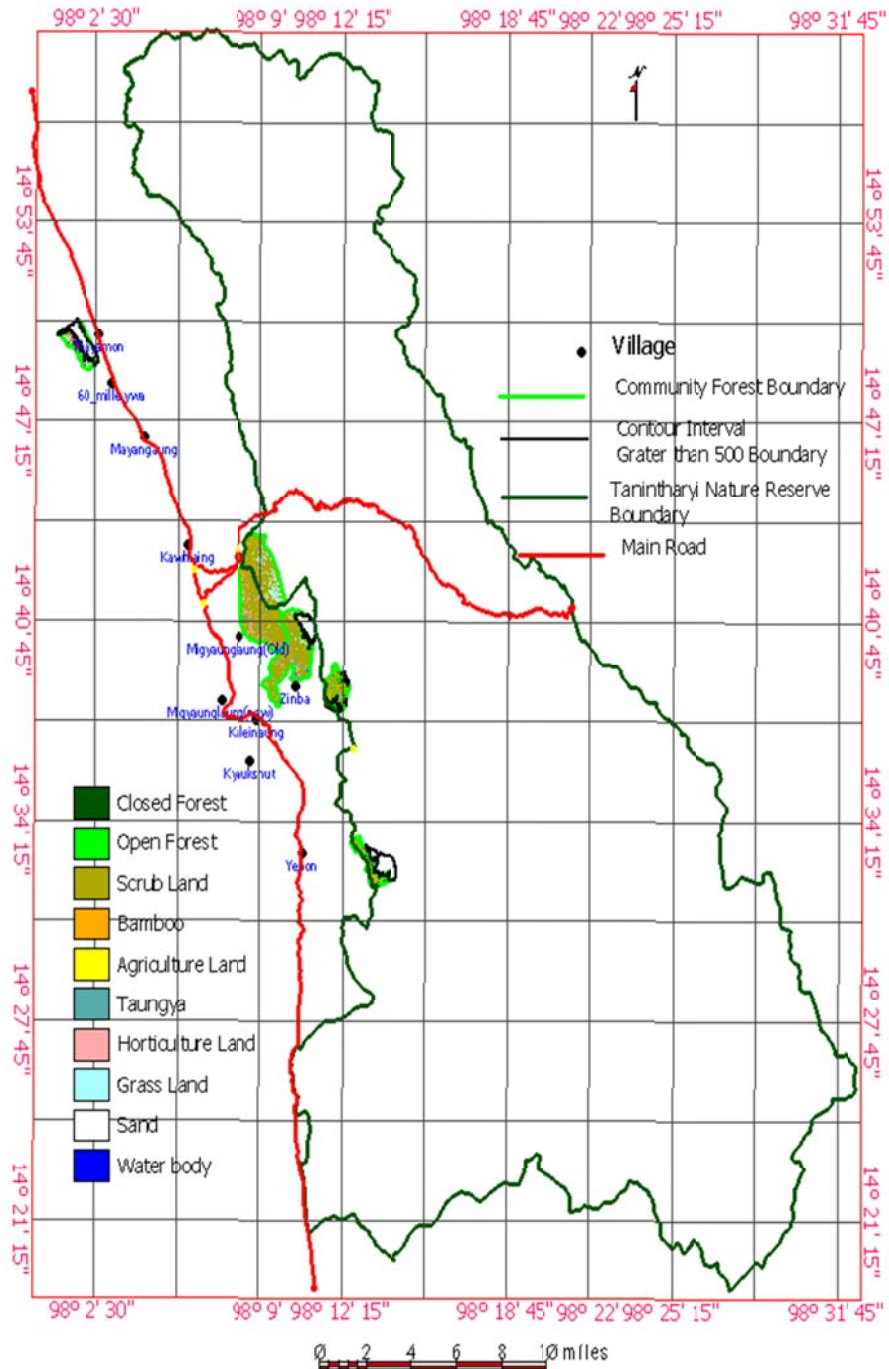
No.	Landuse	Thayamon	Michaunglaung	Zimba-1	Zimba-2	Yebone	Total
1.	Closed Forest	0.81	5.53	1.21	64.24	68.58	140.36
2.	Open forest	23.29	115.15	44.47	139.89	181.89	504.68
3.	Water		11.41	27.88	7.21	6.57	53.06
4.	Agriculture		0.52	0.19			0.71
5.	Grass Land	184.80	311.38	223.25	9.05	1.09	729.58
6.	Dry Grass	95.14	1.21			0.18	96.53
7.	Sand		0.17	40.79	1.58		42.54
8.	Y-R	13.90	18.33	2.06	0.23		34.51
9.	Bamboo	21.07	60.86	41.68	107.15	109.55	340.30
10.	Scrub Land	209.17	2643.49	1384.59	418.05	61.13	4716.43
11.	Horticulture		27.49	48.27			75.76
12.	Taungya		31.47	23.57	10.81		65.85
	<b>Total</b>	<b>548.17</b>	<b>3227.00</b>	<b>1837.96</b>	<b>758.19</b>	<b>428.99</b>	<b>6800.31</b>

**Overall Land use and Land Cover Status of 5 CF Areas of TNRP at contour level of higher than 500 feet**

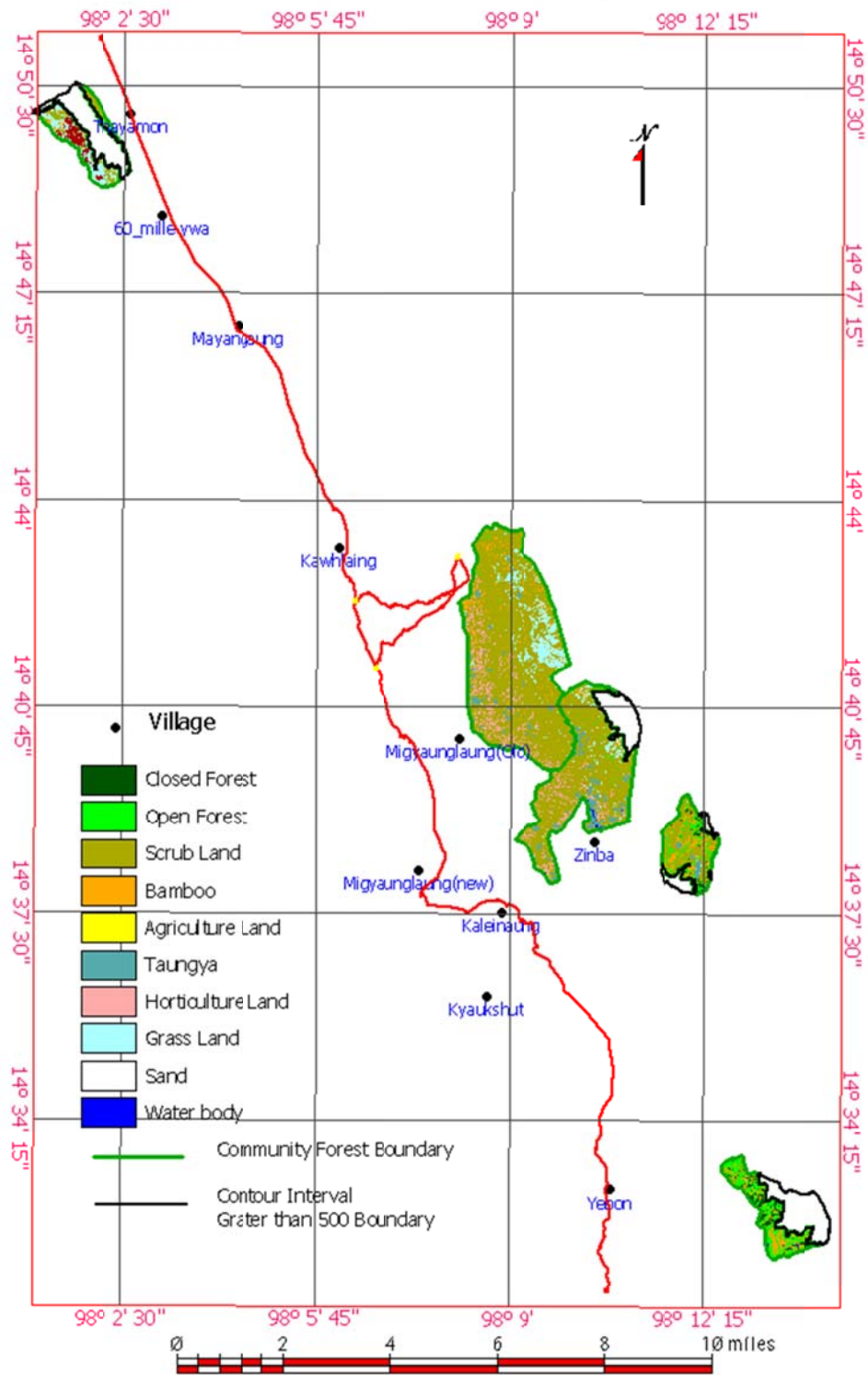
No.	Landuse	Thayamon	Zimba-1	Zimba-2	Yebone	Total
1.	Closed Forest	0.92	1.04	23.13	219.83	244.92
2.	Open forest	49.94	86.87	28.55	244.61	409.98
3.	Grass Land	90.84	60.96	0.18	0.00	729.58
4.	Dry Grass	95.14			0.18	96.53
5.	Y-R	1.44	0.00	0.00	0.00	1.44
6.	Bamboo	15.00	44.58	13.55	26.90	100.03
7.	Scrub Land	344.03	118.60	54.39	15.67	532.70
	<b>Total</b>	<b>503.83</b>	<b>312.04</b>	<b>119.81</b>	<b>507.01</b>	<b>1442.69</b>

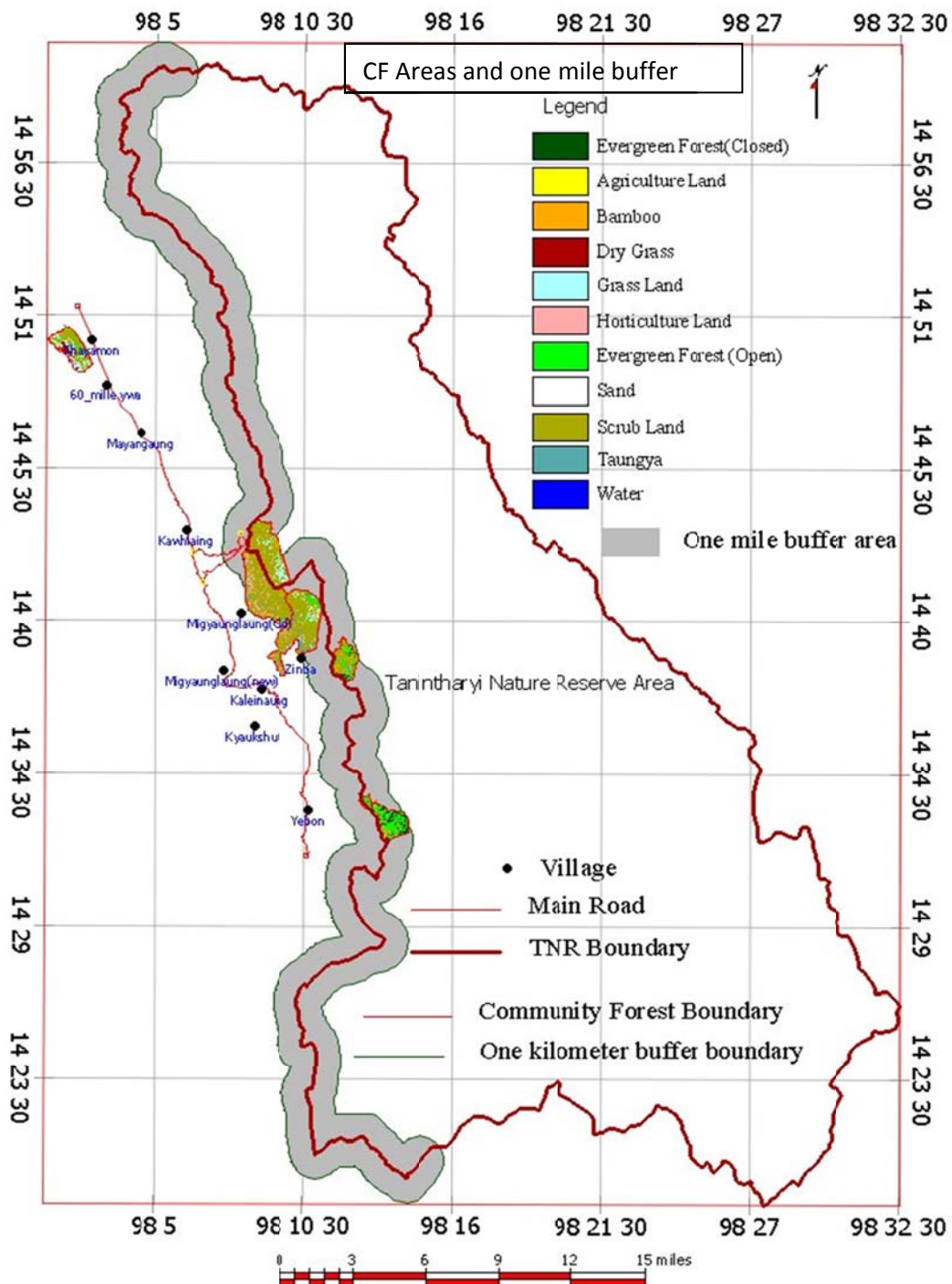


Location Map of Community Forest Area

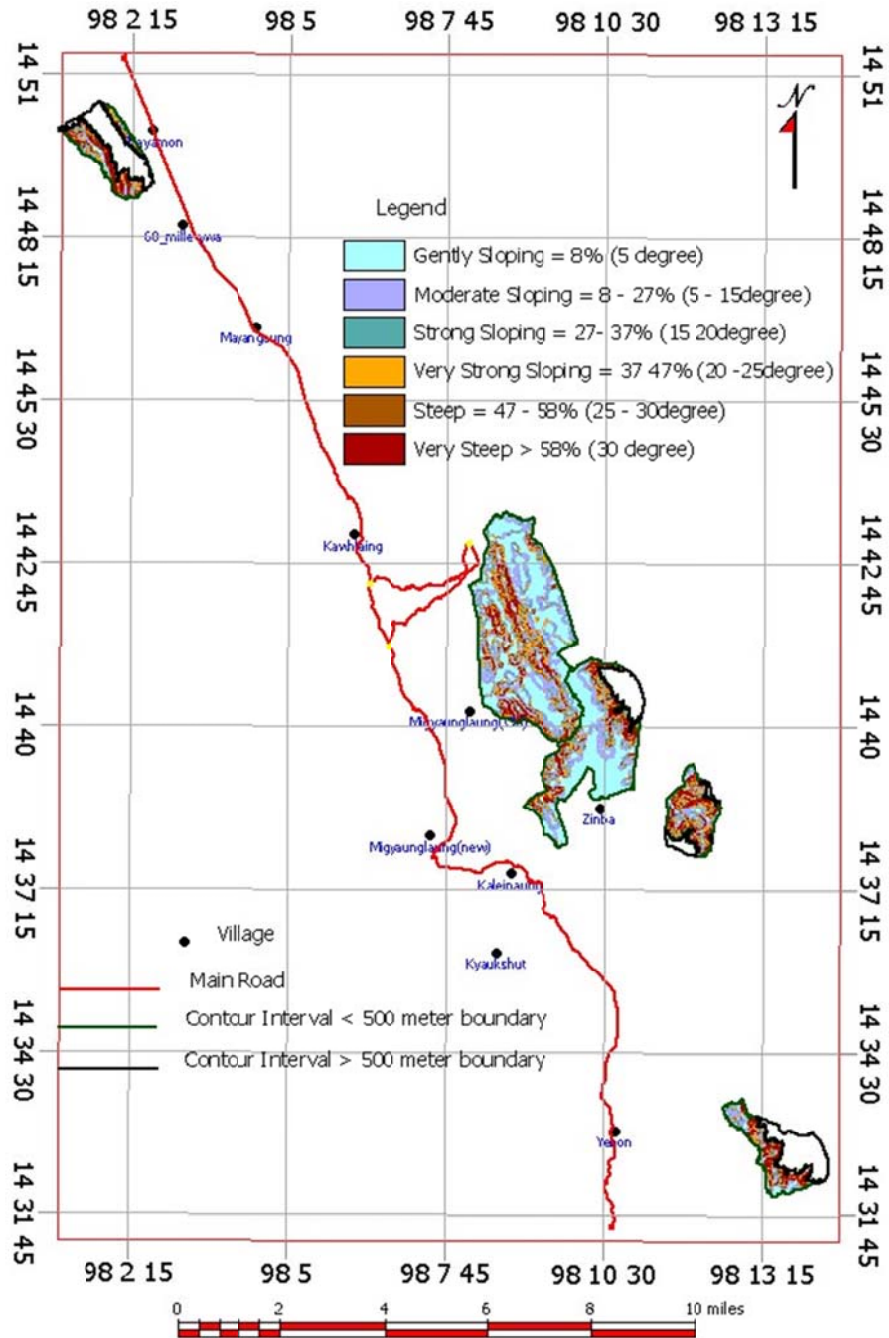


Land Use and Land Cover Status of Community Forest Area





**Slope Map of CF Areas for selected CF Forest User's Group of TNR**



**Slope classes  
of  
less than 500 meter contour interval of selected CF areas of TNR**

Tharyamon C.F area		
No.	Slope class	Area(Acre)
1	Gently sloping = <8% (5degree)	12.94
2	Moderate sloping =8 - 27% (5-15degree)	67.94
3	Strong sloping = 27-37% (15-20degree)	53.99
4	Very strong sloping = 37 - 47% (20 - 25degree)	103.73
5	Steep = 47 - 58% (25 -30degree)	98.67
6	Very steep = >58%(30degree)	210.90
	<b>Total area</b>	<b>548.17</b>
Migyaunghlaung old C.F area		
No.	Slope class	Area(Acre)
1	Gently sloping = <8% (5degree)	1029.21
2	Moderate sloping =8 - 27% (5-15degree)	948.05
3	Strong sloping = 27-37% (15-20degree)	340.02
4	Very strong sloping = 37 - 47% (20 - 25degree)	358.15
5	Steep = 47 - 58% (25 -30degree)	282.86
6	Very steep = >58%(30degree)	268.70
	<b>Total area</b>	<b>3227.00</b>
Zinba_1 C.F area		
No.	Slope class	Area(Acre)
1	Gently sloping = <8% (5degree)	88.14
2	Moderate sloping =8 - 27% (5-15degree)	338.50
3	Strong sloping = 27-37% (15-20degree)	213.59
4	Very strong sloping = 37 - 47% (20 - 25degree)	355.26
5	Steep = 47 - 58% (25 -30degree)	314.71
6	Very steep = >58%(30degree)	527.76
	<b>Total area</b>	<b>1837.96</b>
Zinba_2 C.F area		
No.	Slope class	Area(Acre)
1	Gently sloping = <8% (5degree)	36.36
2	Moderate sloping =8 - 27% (5-15degree)	139.64
3	Strong sloping = 27-37% (15-20degree)	88.11
4	Very strong sloping = 37 - 47% (20 - 25degree)	146.55
5	Steep = 47 - 58% (25 -30degree)	129.82
6	Very steep = >58%(30degree)	217.71
	<b>Total area</b>	<b>758.19</b>

Yebon C.F area		
No.	Slope class	Area(Acre)
1	Gently sloping = <8% (5degree)	36.17
2	Moderate sloping =8 - 27% (5-15degree)	90.57
3	Strong sloping = 27-37% (15-20degree)	46.69
4	Very strong sloping = 37 - 47% (20 - 25degree)	58.70
5	Steep = 47 - 58% (25 -30degree)	55.29
6	Very steep = >58%(30degree)	141.56
	<b>Total area</b>	<b>428.99</b>

## 6.7 Training and extension

A half day training occasion was conducted for TNRP staffs at the extension center of TNRP. The objectives of the training were to raise awareness on forest resource management and nature conservation among TNRP staffs. Following information is transferred to attendants.

- a. Natural resources as forests are basic for food production
- b. Natural resources are a part of life-support system
- c. Natural resources must be regenerated
- d. Sensitive ecosystems must be identified and conserved for they are the basic of livelihood.
- e. Ridge of the highland areas has connections with reef areas of the sea and if the forest at the ridge destroyed, the coastal and marine ecosystems will also suffer negative impacts. ( to realize the inter-related and inter-connected nature of ecosystems)

The training was aided by computer and projector. For the clear understanding of the subject, the Q&A section was performed.

Even though in-class training was conducted only a time, on the job training for extension staff, field staff of TNRP, Staff from Township FD and CF User's Group members was done at times whenever NC made field study of all CF areas and at times of meeting with CF UsG Members.

From the start of his duties CF NC had been closely participated with staffs from Local Operation Units in CF related activities, especially with Deputy Rangers and Extension Staffs who were assigned for Development of Michaunglaung, Zimba 1 & 2, Thayamon, Yebone and

Kyaukshat CFs. Taking this opportunity, NC extended and trained CF activities, the step by step CF Procedures and Management Plan Formulation etc. to them. It was believed to be very effective and hopefully the deputy rangers could acquire CF knowledge for the future facilitation of CF activities.

## **7. Livelihoods**

Globally, livelihoods have been a concern in community forestry for many years, although often under different names (such as benefit-sharing, incentive and income-generation). The concern has been there, but progress has been poor; contributions from community forestry to livelihoods have not been as substantial as they could have been, as much as many people have hoped, or as much as has been sometimes claimed. (RECOFT)

Livelihood improvement of local communities is believed to be a major solution to eliminate the shifting cultivation in and around the TNR. Because, for their subsistence goods and income, most of CF FUG members depend on taungya farming, exploration of Non-wood Forest Products (NWFP) and products of village orchards. TNR Management Team is trying to improve livelihoods of CF FUG members through CF activities. Activities so far are distribution of long-term and short-term cash crop species and valuable wood species, and trial production of bamboo charcoal and its byproducts (the vinegar). As explained in the Management Model of TNRP, TNR Management Team is recommended to make technical advice and material support to villagers for sedentary farming partnering with GO/NGO as Metta Foundation, MAS, and Socio-economic Dept. of TOTAL etc. It is also advisable to support vertical development of outputs from a unit area of existing orchards by means of producing value added products (eg. from Citrus Fruits). Bamboo Charcoal is expected to be a profitable commodity in the future when Tavoy Deep Port is implemented. There are a lot of bamboos in the areas of CFs, 60.25 acres in Zimba-1 CF area, 120.70 acres in Zimba-2 area, 60.86 acres in Michaunglaung Old CF area and 136.45 acres in Yebone CF areas respectively, according to recently interpreted GIS Data (according to 2010 satellite images).

Another advisable mean of Income generation, which was tried in Ayeyawady Delta and reasonably successful, is “**Cash for Work Program**” introduced by some NGO’s in the mangrove

forest rehabilitation activities after the incidence of Cyclone Nargis. In TNRP, this type of program should be initiated in the replanting activities aided by taungya system. Wages for Site Preparation, Tree Planting, Sanitation of the Plantation and Protection should be borne by the Project. Through this way, the success of the tree plantation is expected to be secured. NC believes that this way may attain 2 pronged benefits; one is that the success of plantation establishment can be ensured and another one is that each CF FUG members can earn money from plantation activities and crop cultivation thereby reducing threat of Shifting Cultivation to TNR in the long run. So far NC has learned, in CF Area, some FUG members grew paddy in combination with trees and cash crops in the first year but in the next year they virtually uncared for the planted areas. The area was then covered by bushes, bamboo growth and other weeds hindering the further development of the planted trees and cash crops.

## **8. Outputs of the CF Consultancy**

1. 3 CF Field survey reports had been submitted to township forest department for confirmation of the applied CF areas.
  - a. Yebone CF
  - b. Zimba (2) CF
  - c. Michaunglaung (Old) CF
2. 4 CF Management Plans including CF Bylaws have been formulated.
  - a. Thayamon CF
  - b. Yebone CF
  - c. Zimba (1) CF
  - d. Zimba (2) CF
3. A number of Maps were arranged as below.
  - a. Elevation map for 5 CF Areas namely, Zimba (1), Zimba (2), Michaunglaung (old), Thayamon and Yebone
  - b. Vegetation Cover Status Map for 5 CF areas, Zimba (1), Zimba (2), Michaunglaung (old), Thayamon and Yebone
  - c. Crown Density Map for 5 CF areas of Zimba (1), Zimba (2), Michaunglaung (old) and Yebone



- d. Slope Map for 5 CF areas in the name of Zimba (1), Zimba (2), Michaunglaung (old), Thayamon and Yebone
- e. Land use and land cover status map for 5 CF areas of Zimba (1), Zimba (2), Michaunglaung (old) and Yebone and Thayamon

## **9. Findings**

- Regular meeting with all CF User's Group members for CF development activities is very difficult due to their life style and poorness. (mostly they stay in the taungya cultivation sites)
- Even though CF Certificates has yet to be awarded to CF FUG, TNRP has already started CF implementation activities.
- Given the provision of supports to TNRP, input (budget allotment) for livelihood activities through CF is minimal.
- Forest Land for Local Communities is shrinking due to establishment of rubber, oil palm and other estate crops by local and outside entrepreneurs and elites.
- Customary land ownership as taungya or orchard, in the reserved forest is not balanced among CF FUG Members especially MichaungLaung and Zimba-1.
- To create consolidated and sustainable CF activities for communities in and around the TNR is a long way; and it is necessary to provide more financial and human resources for further improvement of CF in TNRP.
- Input by the FUG members in the existing taungya aided CF plantation and, orchard is not very efficient.
- It is clear that CF alone cannot support improvement of livelihoods of local people; and an integrated approach for sustainable sedentary farming is needed through coordinated effort of Socio-eco Department of TOTAL and local government line agency of MAS, SLRD, FD and Ministry of Livestock and Fisheries etc.

## **10. Recommendations**

As mentioned above, taungya practice or shifting cultivation in and around the TNR is one of serious threats to accomplishment of the objectives and goal of TNRP. But the taungya has been a chronic practice to generate subsistence food and income of local communities since time immemorial. Since the practice is a culturally deep-rooted practice, it will not be easy to eliminate among local communities. Therefore patient and right approaches are necessary in solving the problem. But at the same time, the taungya practice give rise to an immense ecological cost, suitable measures should be taken speedily to eliminate the practice.

CF is just one of intervention measures to be used to solve the problem. But it is by now clear that unless CF activities result in quick and direct benefits to the participating members, their spontaneous participation should not be expected. Meanwhile, If TNRP is going to introduce CF through Taungya Practice, it is also needed to deeply consider the benefit to be accrued from the activities and the environmental cost to be borne.

In the consultancy period, NC paid attention to formulate the CF Management Plans and to attain the CF Certificates in view of securing land tenure for FUGs in accordance with CFI. Nowadays, in the international climate change mitigation agenda, REDD+ (Reducing Emission from Deforestation and Forest Degradation in developing countries, the role of conservation, sustainable management of forests and enhancement of forest carbon stocks) Mechanism is to be introduced as a legal framework in post 2012. By means of this framework, the local community that manages a forest area with secure land tenure/title can earn incomes provided that the management activities are in complied with conditions of REDD+ Mechanism.

Michaunglaung old village is homogeneous in kinship, religious and culture (all household members are Kayin Ethnic and Christian). In addition, all households of the village involve in CF FUG. In the CF area there are about 1200 acres of lands with gentle slope which mostly locate in 3 valleys namely Blobalo Chaung, Nyapal Chaung and Htanpaekhauk Chaung. The CF area exists in the vicinity of the village and most of orchards owned by CF FUG members are located in those 3 valleys. Analyzing the existing socio-economic and biophysical conditions, Michaunglaung FUG should be organized as a model CF FUG among CF FUG of so far selected FUGs by TNRP. Integrated sedentary farming can be introduced in the CF area of this FUG in partnering with Socio-eco Department of TOTAL and other related stakeholders. The major constraint to establish as consolidated FUG, equitable ownership of CF land in both quality and quantity among FUG members must be considered.

Zimba-1 CF FUG and Zimba- 2 CF FUG are 2 CF FUGs of Zimba Village. Zimba-3 CF FUG is supposed to be established by TNRP so as to involve all village households in the CF activities organized by TNRP. As Michaunglaung, Zimba- 1 FUG is a considerably consolidated FUG led by the versatile FUG management committee members who are also village elders respected by

villagers, the Kayin ethnics and Christians. Gentle slope land along Zimba Chaung and Wabyanthe chaung can be introduced sedentary farming.

Zimba-2 FUG comprises of Kayin Buddhist ethnics and it also is a promising FUG to be a consolidated one in the future. The CF area is far away from Zimba Village and locates in the inner buffer zone of TNR. The area is covered by mostly steep slope lands but along Mainmapan Chaung and Yetagon Chaung there are gentle slope lands for horticulture. Yetagon Chaung has a fall and further investigation should be considered so that it may yield the small hydropower for the village.

Thayamon CF FUG locates at the west bank of Tavoy River; therefore the effect on TNR may not be very serious due to activities of villagers. Their ultimate aim of CF implementation is to conserve watershed area on which they wholly depend for their daily water use. But the land areas around the village which situates along the Tavoy and Ye motor road was occupied by rubber plantations; if CF plantation can be established in the western side of the area, future needs of pole, post and other forest product for villagers may be some extent fulfilled.

CF area of Yebon FUG is located in the inner buffer zone of TNR and distance from village is considerably long and takes a couple of hours to get to the CF area. In compare to the household number of the village, CF FUG member household is small. The CF area is covered by steep slope lands and land for sedentary farming is almost impossible. Villagers depend agricultural farming and horticulture in the land of un-classed forest. Consultation results showed that their intention to establish CF is to conserve watershed and to produce subsistence needs of wood and non-wood forest products for the villagers.

Following are generalized points of recommendations by the NC.

- In cooperation with TOTAL Socio-eco Department, SLRD, MAS and Irrigation Department, TNRP Management Team should launch an integrated program approach, including soil and water conservation, agro-forestry, irrigation, watershed management etc in the CF areas selected.
- TNRP should be supported with increased budget for CF programs in view of creating more income generation activities for communities, e.g. Cash for work programs for quick return of benefit to CF members.

- Once initiated, as CF is a dynamic and an ongoing nature, continued assignment of staff (especially trained CF Staff) for TNRP is essential. Moreover, monitoring, technical support, and management/supervision of the following year's activities should be continuously conducted.
- Alternative income generation activities such as making Charcoal from bamboo and value added products producing activities from horticultural products of their home garden should be encouraged.
- With regard to livelihood improvement of local people, activities should be based and innovated on local or indigenous knowledge rather than introduction of new technology which is difficult to follow by local people.
- Among CF User's Group members, educated members should be trained in book keeping, record making, reporting, ledgering and accounting etc. for being a self reliant organization in the future.
- To be a sustainable CF User's Group, they should have a site comprehensive management plan and a suitable financial mechanism in combination with creation of a socially cohesive CF User's Group (Consolidated CF FUG).
- To protect from encroachments into the TNR inside areas, CF implementation in the areas outside of TNR should be promoted by Tanintharyi Division FD.
- For continuous or effective implementation of the CF, TNR management team should form or create a Task Force of CF Implementation headed by a qualified staff officer or a range officer.



Giant evergreen trees (Dipterocarp. Spp.)

## 11. Conclusion

On a global level, tropical forest destruction is not only resulting in the greatest loss of species ever experienced in the planet's history, but also contributing to changes in the world's climate. Many tropical forests are cleared by burning and this undoubtedly contributes to the build-up of carbon in the atmosphere, the greenhouse effect. Forty percent of all drugs prescribed in the United States are based on rain forest plants, while the UN estimates that less than two percent of tropical forest plants have been screened for medicinal properties. Tropical forests are also the "lungs of the world" just as crucial is their role as natural regulators of the world's climate. (Rain Forest Politics, Philip Hurst)

Taninthayi Nature Reserve, as explained in the introduction of this report, supports extensive evergreen forests and embraces globally significant populations of large mammals including Tiger, Asian Elephants and Malay Tapir etc. Therefore, TNR has immense potentials for future research and education activities. In addition, because of existence of cultural heritage sites of the region and natural beauty of forests and geographical formations e.g. waterfalls, the ecological tourism opportunities are believed to be exposed in the future.

With considerable number of poor population encircling the TNR, the sustainable management of the reserve should not be expected unless appropriate livelihoods programs are implemented. In fact, shifting cultivation is a practice that arouse from the fact that local people had rare alternative income opportunities for their subsistence living, though the cultural reasons were another aspect of the problem.

As CF is one of the practices of community based resources management, a long term interaction and participation of TNRP and FD staffs with CF FUG members is essential to implement successful community forestry. As also CF is a major activity to reduce the threats of TNR, the efficient community facilitators should be newly assigned or trained selecting from TNR staff.

For getting quick return of profit from CF, appropriate agro-forestry systems should be combined with Community Forestry Activities. There are land areas for sedentary farming in CF areas of Michaunglaung and Zimba-1, but other areas of CF for Thayamon, Zimba-2 and Yebone do not contained suitable areas for sedentary farming, according to direct observation and GIS

data interpretation. In addition, CF areas of Michaunglaung, Zimba-1 and Thayamon are in the vicinity of the villages, but distance between remaining CF areas and respective villages are reasonably far away.

CF activities of TNRP are in good progress at the every stage of CF such as extension, capacity building of staff and CF FUG members, status of awareness on CF and nature conservation among staff and villagers, in consolidation of CF FUG etc. But on the one hand, it is necessary to accelerate the pace on cooperation among related stakeholders, allocation of more budget for CF related activities (income generation, vocational training etc.) and recruitment of CF extension staffs with the skill of local languages in order to establish the sustainable CFs around the TNR.



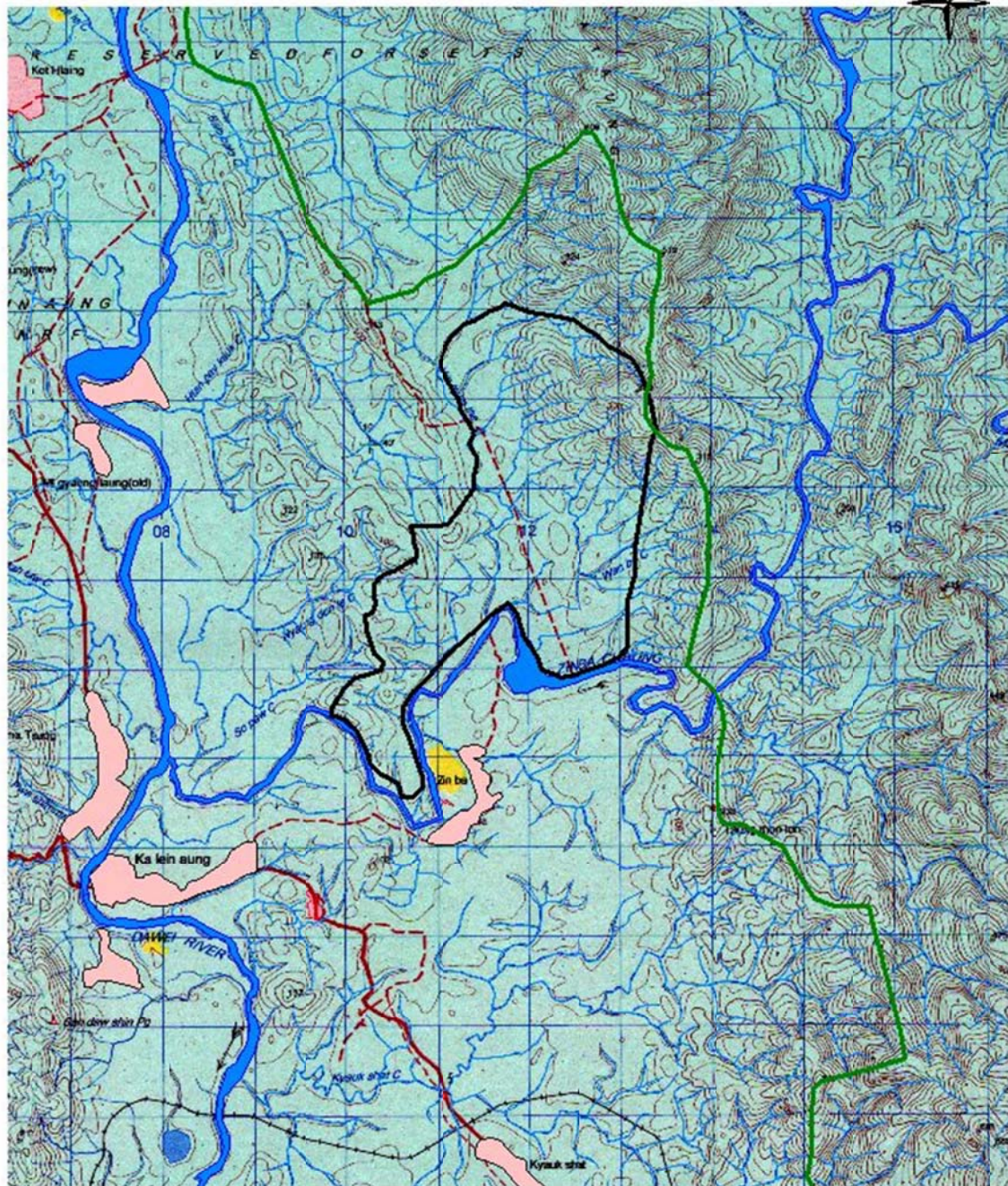
A uniform stand in TNR core area,

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# Location Map of Zinbar CF (1)



## Legend

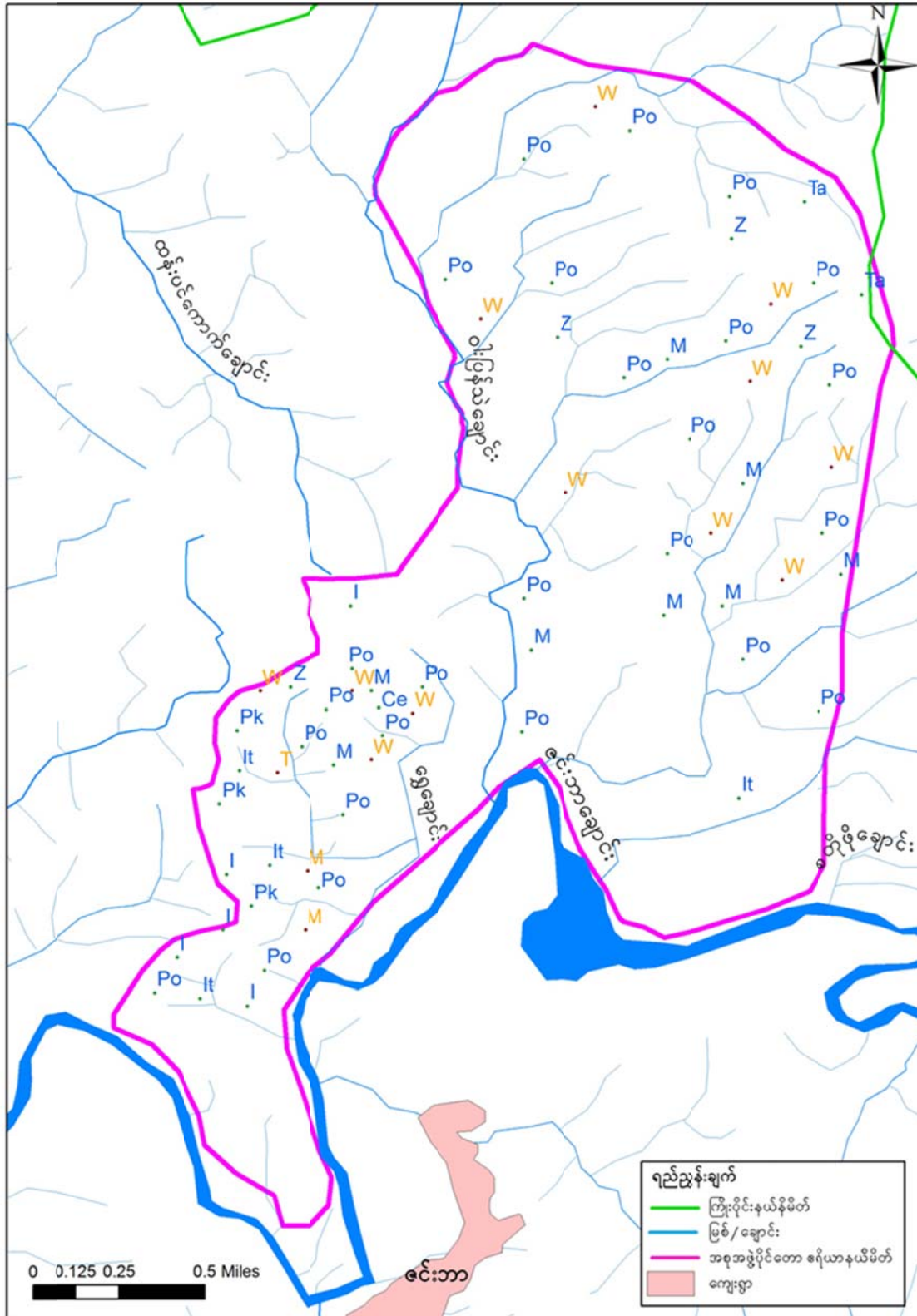
-  TNR Boundary
-  CF Boundary
-  River/ Stream
-  Village area

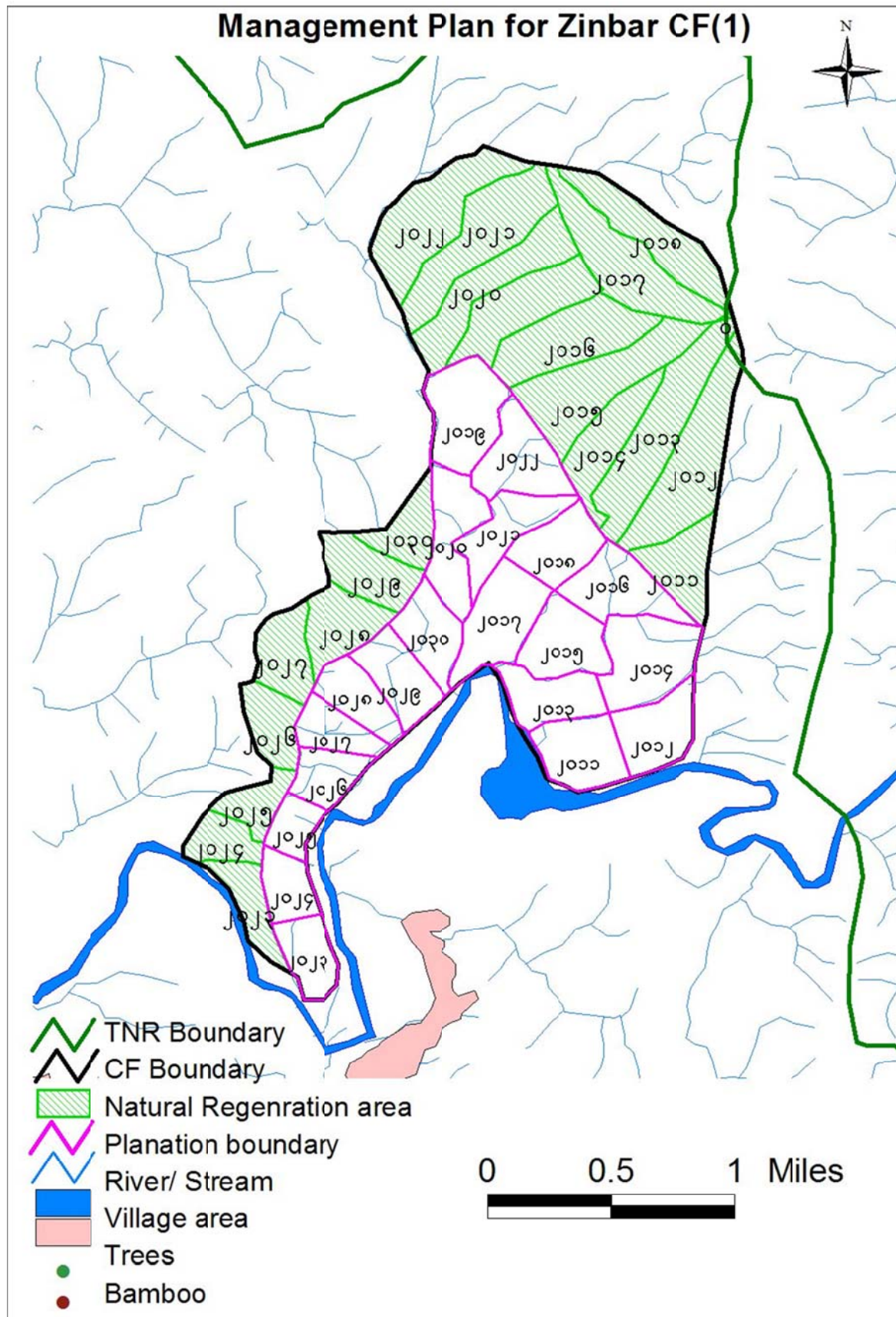
0 1 2 Miles





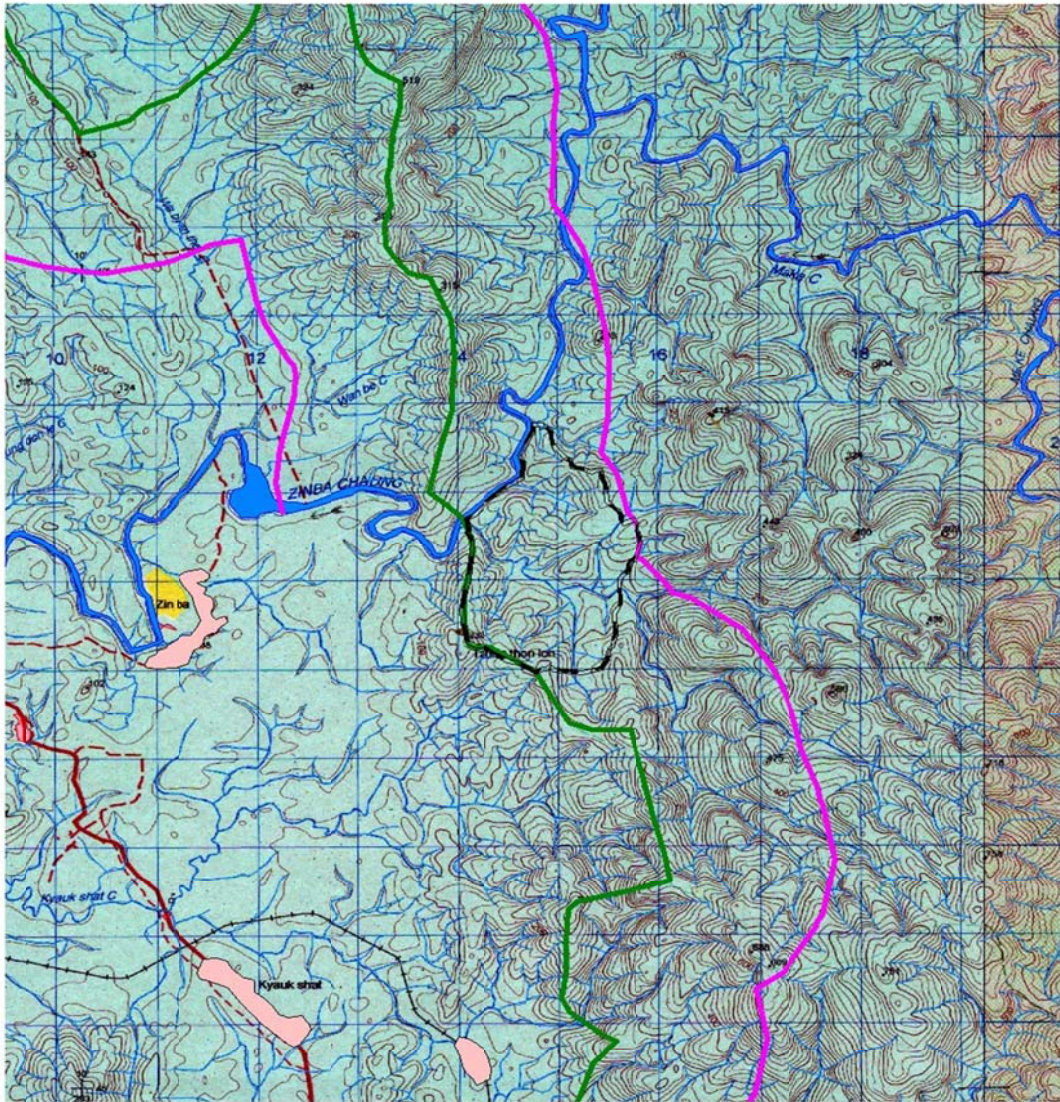
ဦးစောဂလက် ဦးဆောင်သောဇင်းဘာကျေးရွာ အစုအဖွဲ့ပိုင်တောရှိ ပါဝင်ပင်ပြေမြေပုံ







ဇင်းဘာကျေးရွာ အဖွဲ့ (၂)၏  
ဒေသခံပြည်သူ အစုအဖွဲ့ပိုင်တော တည်နေရာပြမြေပုံ

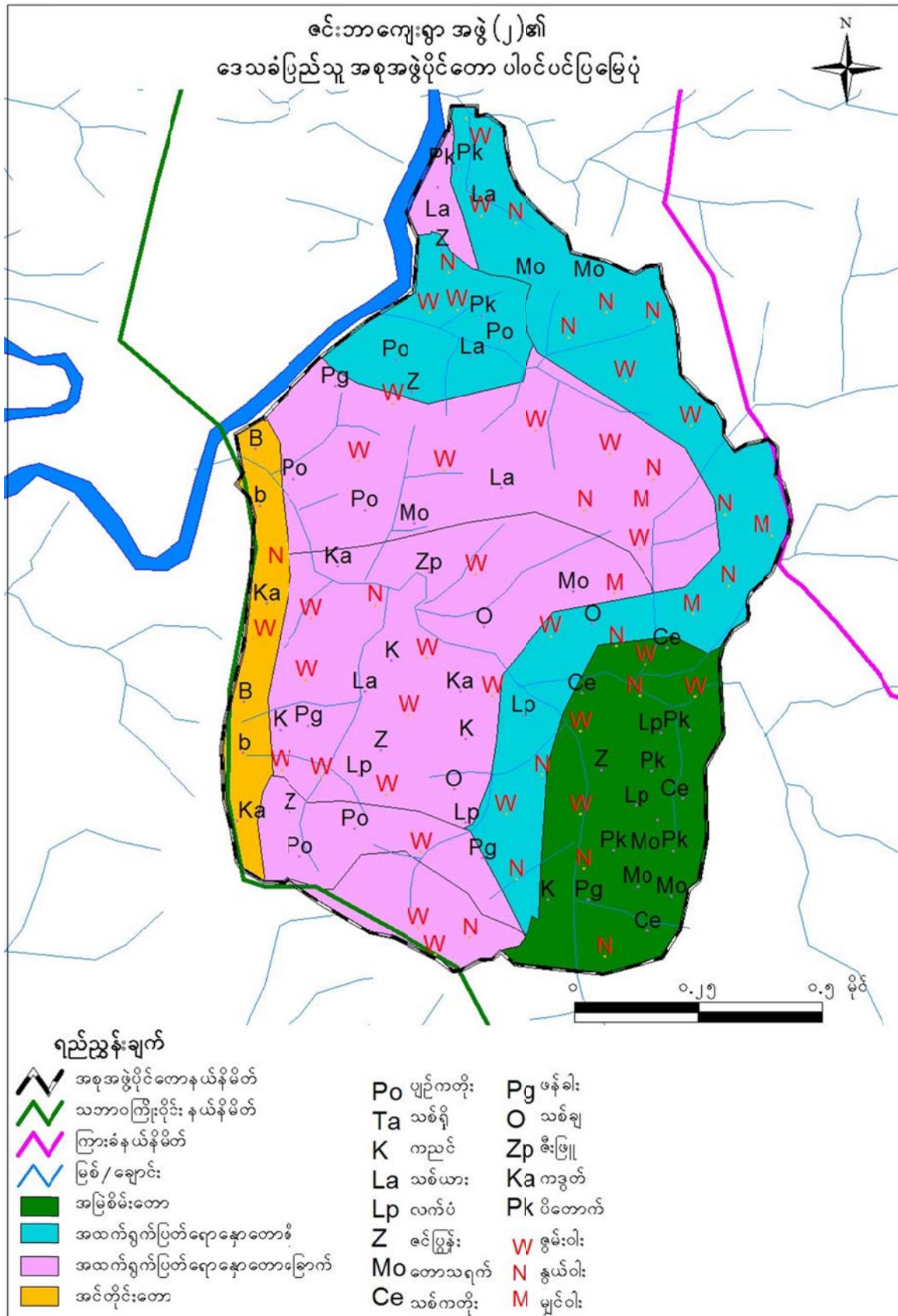


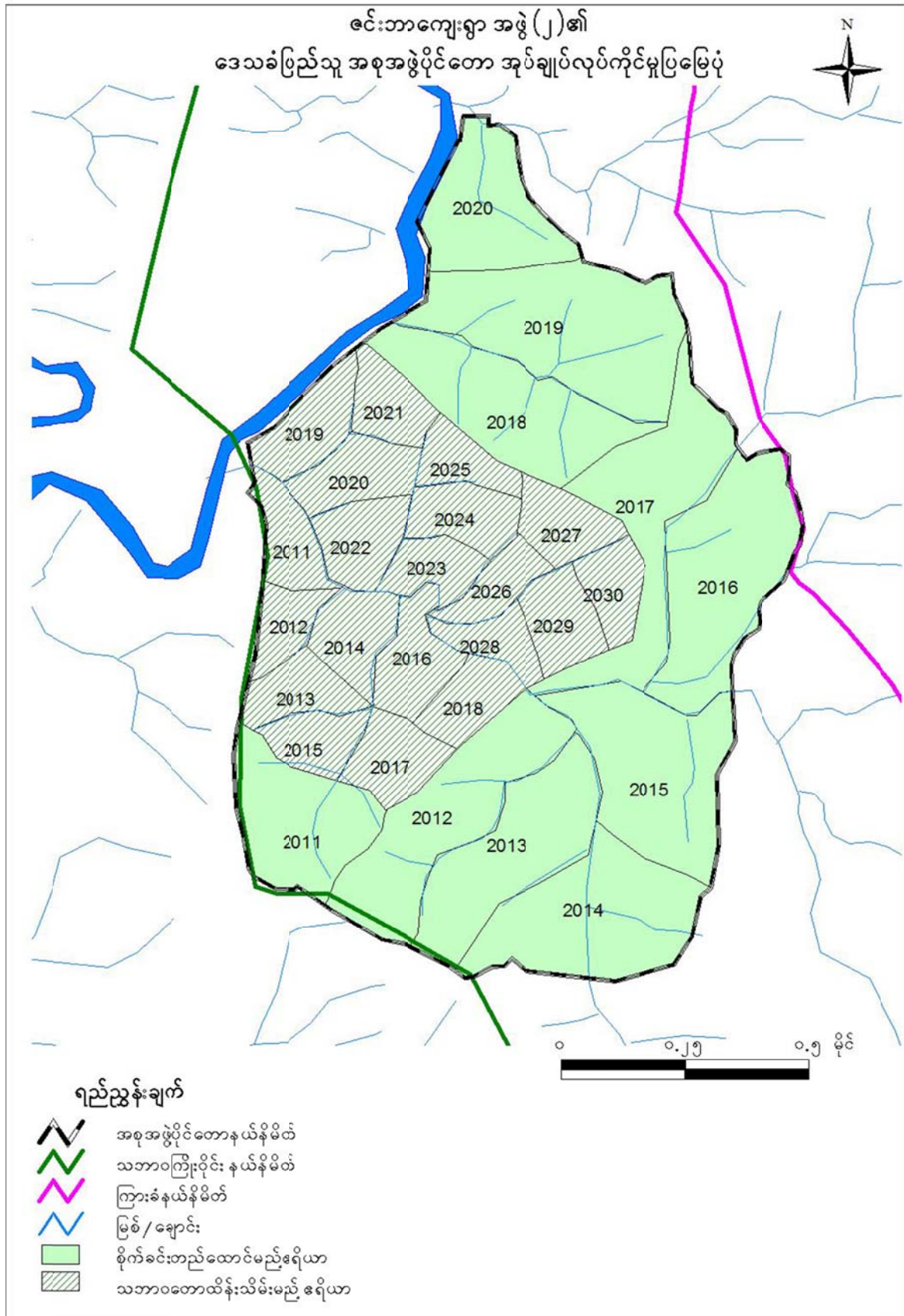
ရည်ညွှန်းချက်

-  အစုအဖွဲ့ပိုင်တောနယ်နိမိတ်
-  သဘာဝကြိုးဝိုင်း နယ်နိမိတ်
-  ကြားခံနယ်နိမိတ်
-  ကျေးရွာ
-  မြစ်/ချောင်း



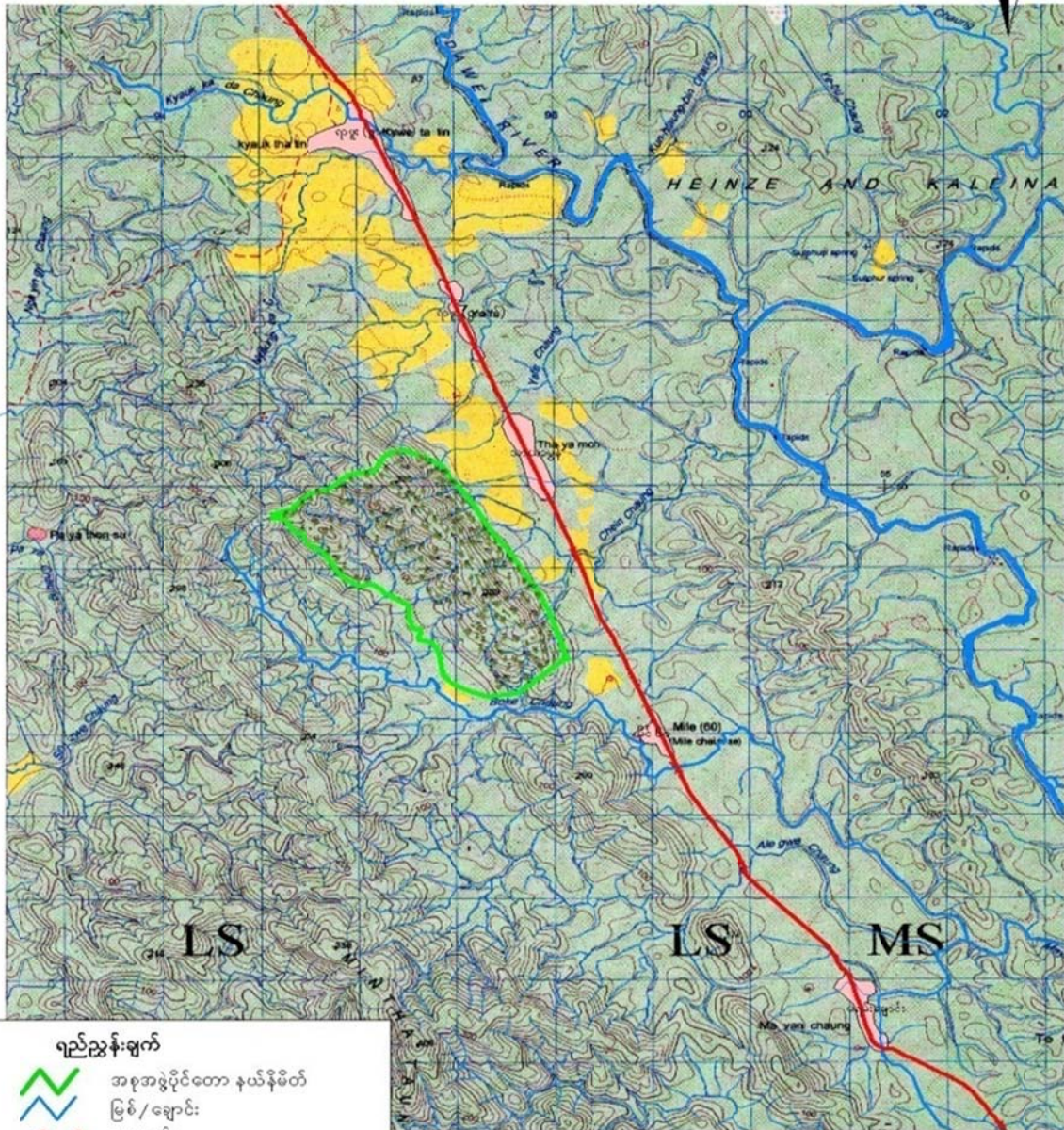








သာယာမွန်ကျေးရွာ ဒေသခံအစုအဖွဲ့ပိုင်တော၏ပါဝင်ပင်ပြမြေပုံ



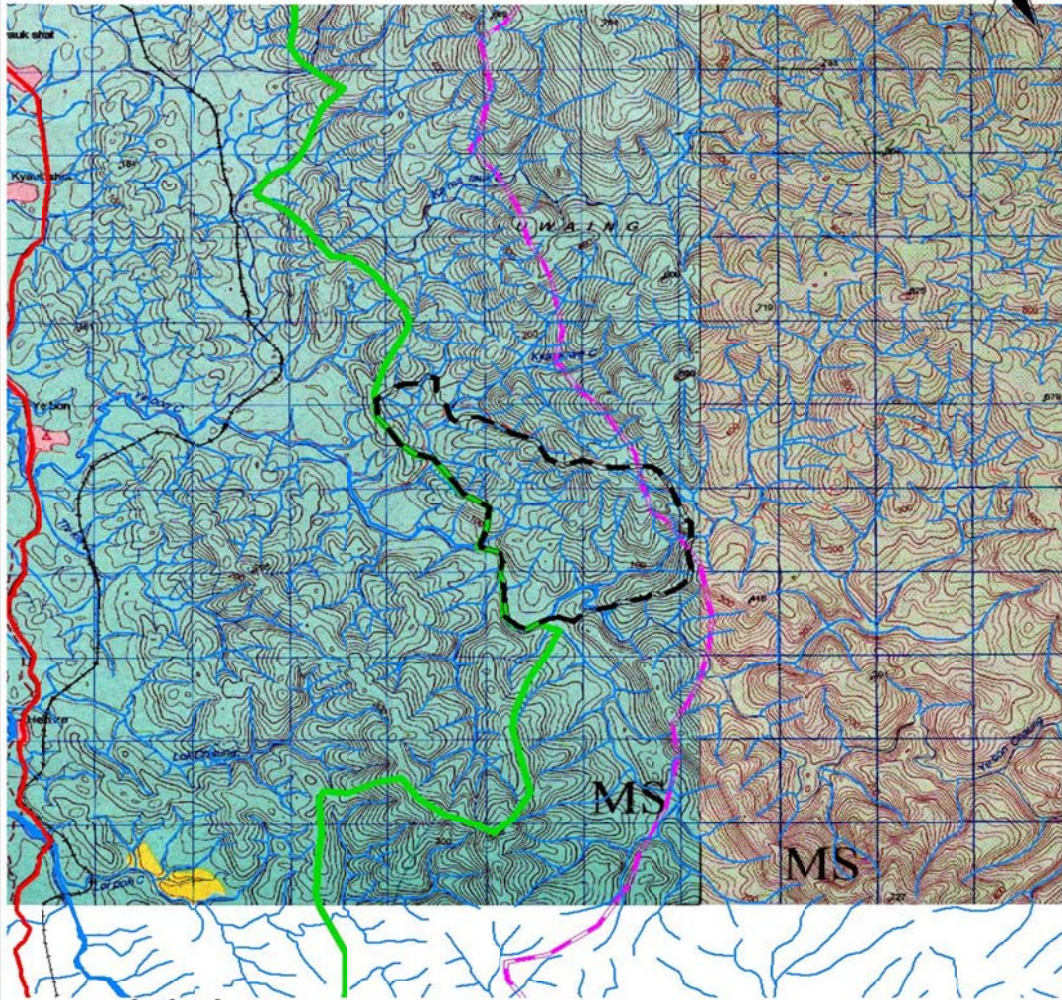
0 0.5 1 Miles

[illegible]



ရေပုံးကျေးရွာ ဒေသခံပြည်သူအစုအဖွဲ့ပိုင်တော  
တည်နေရာပြမြေပုံ

မြောက်



ရည်ညွှန်းချက်

-  အစုအဖွဲ့ပိုင်တော နယ်နိမိတ်
-  သဘာဝကြီးပိုင်းနယ်နိမိတ်
-  အတွင်းကြားခံနယ်နိမိတ်
-  ကားလမ်း
-  လှည်းလမ်း
-  မီးရထား
-  မြစ်/ချောင်း
-  ကျေးရွာ





